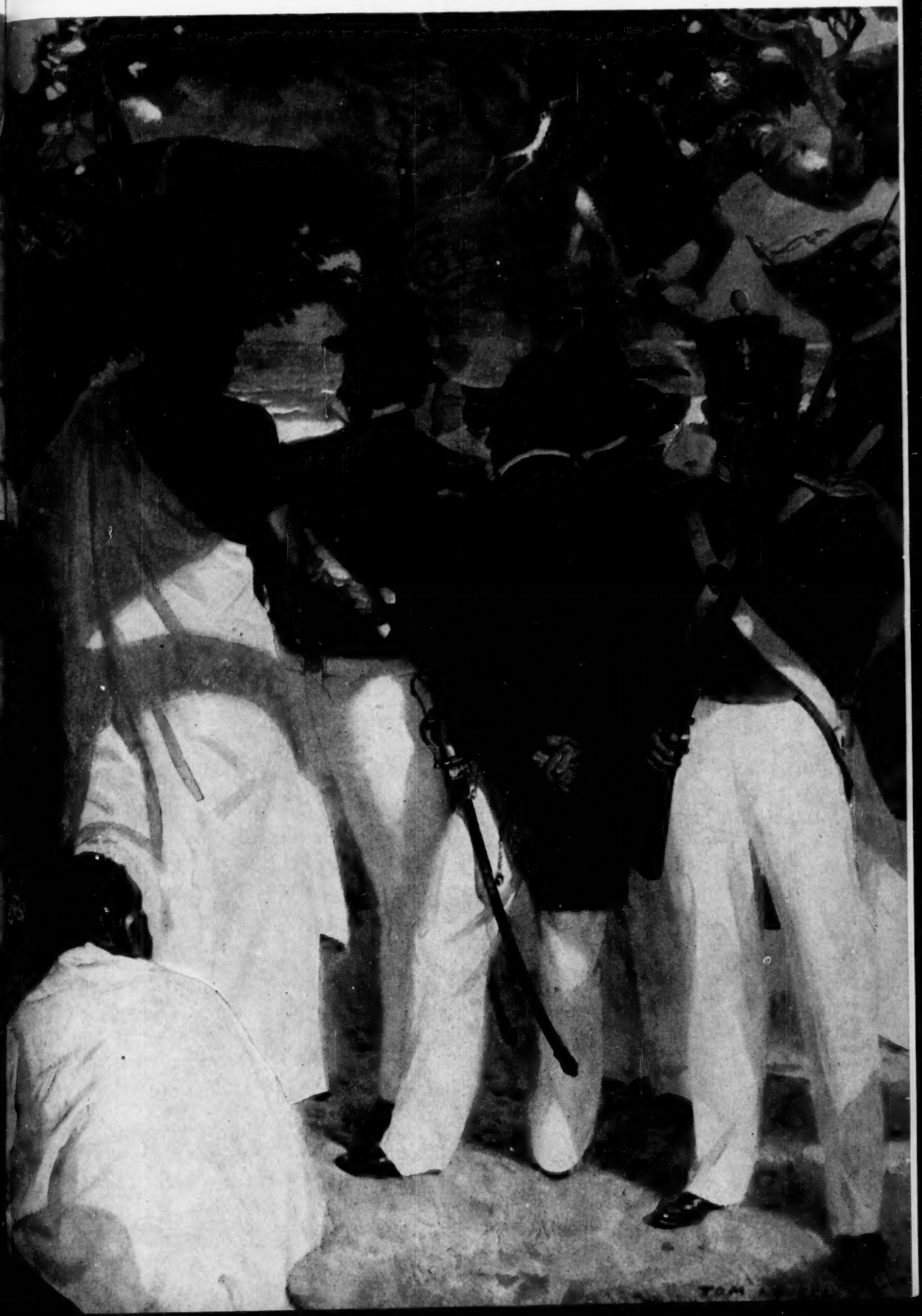
MARINE CORPS **Gazette** MARCH 1945 30c



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THE MARINE CORPS
THE PROFESSIONAL MAGAZINE
FOR UNITED STATES MARINES

Gazette

MARCH 1945

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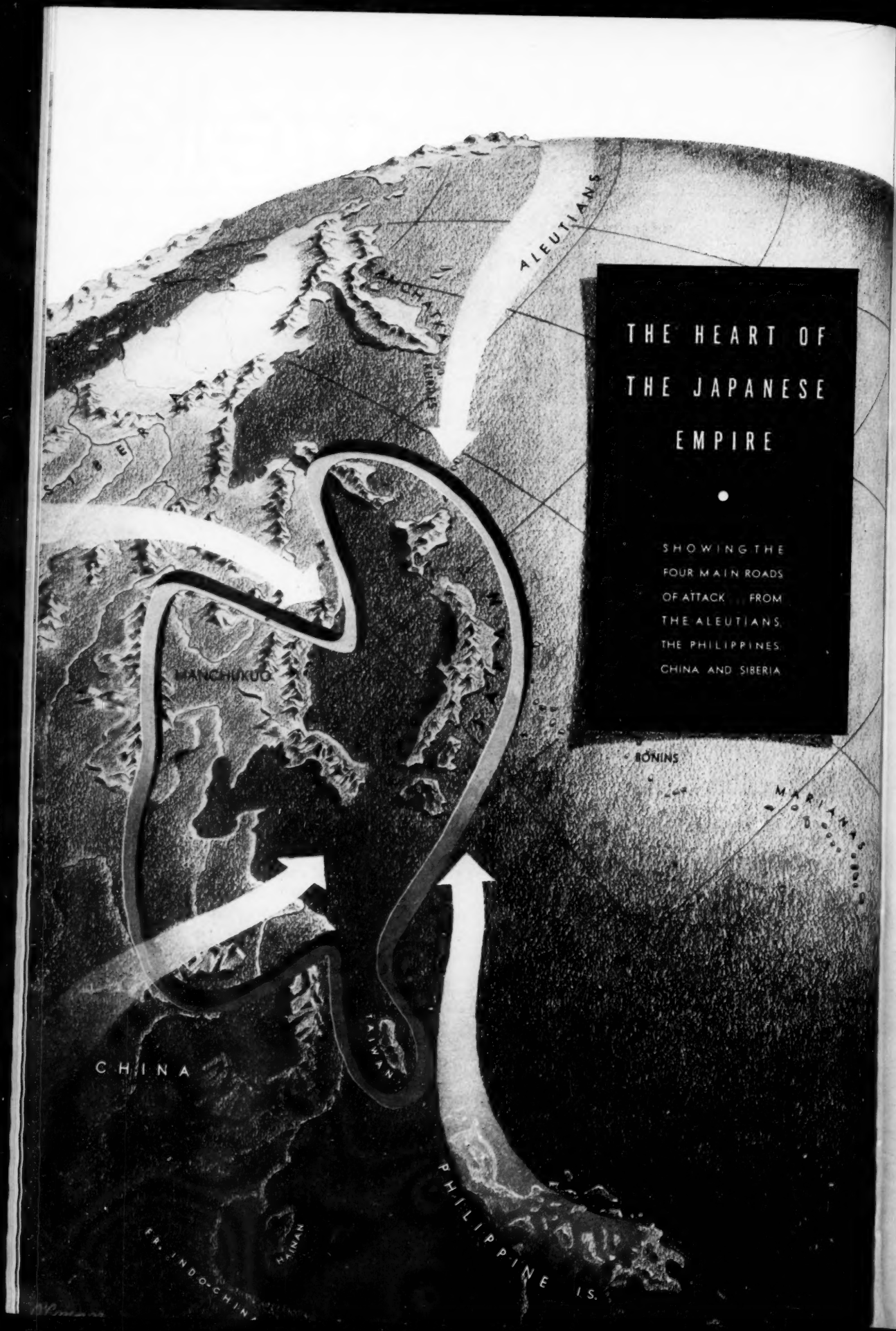

THE HEART OF THE JAPANESE EMPIRE
SHOWING THE FOUR MAIN ROADS OF ATTACK FROM THE ALEUTIANS, THE PHILIPPINES, CHINA AND SIBERIA
ALEUTIANS
KURILES
MANCHUKUO
BONINS
MARIANAS
CHINA
TAIWAN
HAINAN
FR. INDO-CHINA
PHILIPPINE IS.

Pacific Strategy

Complete victory over Japan means we must reduce the Japanese Empire to its original scope in 1854, when it consisted of the four islands of Hokkaido, Honshu, Shikoku, and Kyushu. ***By Capt. Miles R. Browning, USN***

JAPAN'S life as a modern power began when she was "opened up" by Admiral Perry in 1854. Since that date, the Japanese have moved purposefully and efficiently toward their ultimate goal of world domination. In the ninety years which have elapsed, Japan's technological and industrial development has been one of the world's modern wonders; second only to the strides of Russia in the past two decades.

The caste system and feudal structure of Japanese society have been retained and even strengthened in some respects. The military caste sits at the summit of this structure; Army and Navy completely dominate national policy in every field. The Emperor, as the "Son of Heaven," is a national divinity far removed from the mass of people. He is figurehead only; the respect and worship of his people are exploited to the fullest extent by the saber-rattling military who, in the Emperor's name, dictate the empire's policy and guide its destiny.

Japan's Predatory Opportunism

The amazing swiftness with which the Japanese perceived and adopted the pattern of territorial conquest and penetration as practiced by other great powers, is a criterion of their national philosophy. The nation is the most ruthless and persistent opportunist ever to enter the ring of international power politics. Jap national social morality is well expressed by the children's predatory cry "Finders Keepers." Pursuant to that thesis, only twenty-one years after the birth of modern Japan, she commenced a series of step-by-step seizures designed not only to acquire territory and strategic materials, but also to ring her "inner citadel" with deep perimeter defenses. Figure No. 1 shows these moves through 1910. Of her annexations prior to 1900, Formosa was the only one to bring her any considerable increase in resources; the others were primarily outposts and stepping stones for projected operations.

Early in the twentieth century she had developed into a bold and experienced second-story operatrix. She decided to try a street holdup; accordingly Russia was blackjacked at Port Arthur and Tsu-Shima. As a result, Japan pocketed rich Kwantung and Karafuto in 1905. In 1910 she took Korea. Ten years later she collected the spoils of her ride on the Allied Bandwagon of World War I in the form of acquisition of the ex-German mandates of the Marshalls, Carolines and Marianas.

In 1931, encouraged by the military deterioration of America and Britain, and the internal preoccupation of Russia, she decided to step up the tempo of her raids. She seized Manchuria; two years later she extended this grab to include Jehol province. In 1937 China was invaded. In 1940, following the fall of France, she entered and took military control of Indo-China and Thailand.

Gambling for Large Stakes

The stage was now set to her liking for her biggest gamble, the seizure of the Philippines, NEI, Malaya, and Australia, and the final linking up with her partners in crime and the Axis through southern Asia and southeastern Europe. She struck on December 7, 1941.

The terrific impact of the Jap amphibious blitz in the first six months of the war is familiar to every reader. Take a look at Figure No. 2 which shows its penetration. The battles of the Coral Sea and Midway finally checked the advance while the tenacious resistance of Russia in Europe killed Japanese hopes of a quick junction with Germany and Italy by way of India.

The Japanese are not only international opportunists; they are plungers. Checked at Midway and Port Moresby, they tried to "bull their luck" in the Solomons. In the waters surrounding those islands, they threw good resources so recklessly after bad that it has been fairly said that Guadalcanal was worth more to us before we had completely taken it than it ever was afterward. The imperial fleet's morale was broken and its back badly strained in the violent naval encounters which featured the Solomons campaign. Here, Japan lost the initiative; history may well say that it was here that she lost the war. The end of 1942 found her short of her vital goal—the severance of the sea lanes from America to Australia—and on the strategic defensive in the southern theater. However, there was much to encourage the Tokyo Supreme War Council in January, 1943. The Jap foothold in the Aleutians was still secure; the Burma Road was cut; Russia was still fighting with her back to the wall. Even if world domination now looked "two jumps" away—instead of only one—the Greater East Asia sphere was hers and she would hold and consolidate on that line. Later—another war perhaps—she would finish the job and install Yamamoto in the White House at Washington.

Throughout 1942, our strategy in the Pacific comprised three main features:

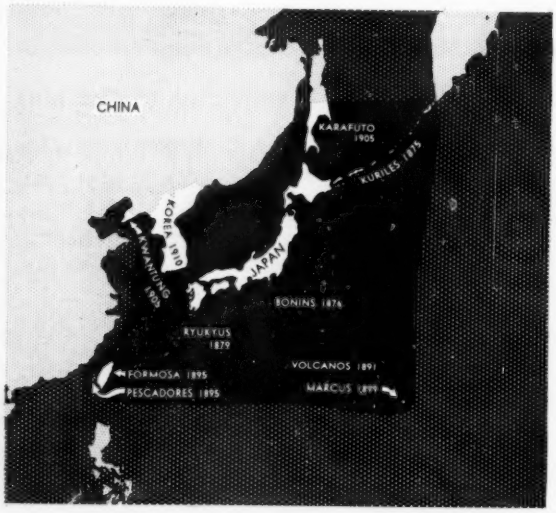


Figure No. 1 shows Jap seizures through 1910.

First, and at all costs, hold the line: Dutch Harbor—Midway—Samoa—Australia.

Second, gather strength and resources to assume the offensive.

Third, destroy Japanese shipping wherever and whenever possible.

The Enemy Provided the Targets

That we were successful in the first two of these needs no elaboration. As for the third, our submarines carried their destructive offensive far into Japanese waters, and their tremendous toll of enemy vessels is familiar to everyone. The Jap obligingly contributed enormously to his own attrition by his ill-considered exposure of shipping concentrations in the New Guinea-Solomons area.

In the spring of 1943, we took the offensive. Admiral Halsey's drive up "the slot" of the Solomons was coordinated with MacArthur's New Guinea advance. These twin thrusts met at Bougainville and went on, under MacArthur, to Wewak and Hollandia, by-passing Rabaul. We had set foot upon the New Guinea road to the Philippines. In late 1943, the Gilbert Islands were taken by Nimitz preparatory to seizure of Kwajalein, Majuro, and Eniwetok in the Marshalls. From these latter bases, once they were in our hands, was to stem the Central Pacific thrust to meet MacArthur's advancing forces later at Leyte.

Meanwhile, the Jap consolidated his position and bent frantic effort to build up his strategic stockpile in the "inner citadel" of his empire. It was here that the wisdom of our persistent destruction of his shipping became apparent. He couldn't move his loot from the East Indies into his homeland; his shipyards were plagued with an unending stream of damaged vessels requiring repair; his outlying garrisons, harassed by continuous attack, made unexpectedly heavy demand on the relatively few bottoms he had in operation; frenzied wooden construction and the impressment of every available sampan and fishing vessel left him far short of minimum needs. Ships were the corpuscles of the bloodstream of his vastly extended position—and he had been bled nearly white by our attacks and his own prodigality.

Time Ran Out for Tojo

The beginning of 1944 found the Japanese effort concentrated on improving his inner defenses while making preparations to make penetration of his outer perimeter as costly and time consuming as possible. Time was what he needed; how long would it be before we punched through that outer line? On January 31 he got his first answer—our assault on the Marshalls and our capture of Kwajalein, Majuro and Eniwetok in February. Immediately following this there commenced the pattern of carrier task force sweeps stabbing into the doorsteps of the Philippines and, finally, to Formosa and Luzon themselves.

Time ran out more swiftly than Tojo had gambled; we wasted none of it in long and bloody sieges of Truk and Rabaul—delays which he had counted upon. We struck straight west. Saipan, Guam and the Palaus were occupied in swift successive strokes; then west to join MacArthur's forces in the landing on Leyte. The Jap was caught off balance at the start and kept there the entire time. Saipan was a key position whose vital importance he well knew, but he wasn't ready in time to oppose its assault. Against his will he risked the first battle of the Philippines in an effort to hold Saipan—and emerged far worse off than before.

Guam and the Palaus brought forth no major counterattack; the imperial navy was still patching its battered ships. Leyte followed so swiftly that, again, he wasn't set. But our successful establishment in force in the Philippines means to him the loss of the Netherlands Indies and Singapore; realizing this he risked another long shot —the Second Battle of the Philippines. He lost his shirt in this one; with that shirt there dropped away his hope of maintaining control of the sea passages leading west through the Philippine Archipelago and debouching into the South China Sea. For us, the mastery of the inland waters leading west from Leyte meant the opportunity to thrust directly to Mindoro, preparatory to the assault on Luzon with its major prize, Manila.

Sound Logistics in the Pacific

The close of 1944 found us consolidating our footholds in the central Philippines, with sea and air mastery of the adjacent waters, and prepared now to cut the last link between the Jap inner citadel and his stolen East Indies empire.

The title of this brief survey is "Pacific Strat-

Figure No. 2 reveals Jap progress in the first six months of their Pacific blitz.

egy." It does no violence to the subject to rename it "Pacific Logistics." In no theater in the world is there more constant and classic illustration of the age-old truth; successful war is sound logistics. The tremendous distances of the Pacific need no recapitulation for the reader; Singapore is as far from New York as the North Pole is from the South Pole; Manila is one-third of the earth's circumference away from San Francisco. With the consciousness of these vast stretches of the Pacific in mind, consider the general thumb rule that military operations increase in difficulty and expense directly as the cube of their distance from their base. Apply this to our current Philippine campaign; San Francisco is four times as far as Tokyo from Manila; pound for pound of fighting effort, we pay sixty-four times as much as the Japs to fight on Philippine soil!

There is, however, one saving element in this gloomy equation; our advanced bases, developed and stocked by the never-flagging effort of our shipping since the war started. These are the "pumping stations" and "surge tanks" of our Pacific strategic pipelines. In the Central Pacific, from Pearl Harbor the line leads west through Kwajalein, Majuro and Eniwetok; to Guam, Saipan and the Palaus; and thence to the Philippines. From Australia and New Caledonia, lines run north and northwest via Port Moresby and Guadalcanal, Bougainville and the New Guinea

coastal ports; to Morotai and thence to the Philippines, merging there with the Central Pacific supply line. Without these routes and their way stations, we could not have established ourselves in the Philippines; without the Philippines we could not hope to mount an adequate assault on inner Japan.

The all important principle to be recognized in overseas warfare is this: *The tremendous drain of overlong logistic lines must be offset by the seizure and development of adequate land masses to provide major base and logistic reserve before decisive pressure can be brought to bear upon the enemy.* In the first two years of the war in the Pacific, Australia provided our major advanced base and fulfilled this indispensable function. With our capture of Luzon, our major advanced base will be shifted to the Philippines and we will enter upon a decisive phase of our war with Japan, i. e., assault upon the "inner citadel" of the Empire.

Shortages Inevitable in Japan

The frontispiece map shows the approximate extent of this "inner citadel." It comprises the more developed areas of the mainland territory presently occupied by the Jap, plus the main island chain off the coast and extending northeast from Formosa to Hokkaido. Within this area, which is relatively well developed industrially, are concentrated the resources of Japan's war machine. In general, her industrial capacity is limited by the fact that her major processing plants are in the islands, while her raw material sources are on the mainland. She has devoted strenuous effort to building up stockpiles in the main islands, and in some categories she is equipped with adequate reserves to feed her production and war machines for years. In others, however, notably steel and petroleum products, she is not well fixed. Her conquests, since Pearl Harbor, have brought her practically no additional heavy metal resources; steel is the critical index of her endurance. In the matter of oil, although she coralled tremendous underground resources in her occupation of the Dutch Indies, she has been unable to take her booty home due to the inadequate shipping. As the boundaries of her empire contract, her petroleum products requirements will reduce and so postpone the day when oil shortage becomes a decisive factor. Nevertheless, that day is on its way; her fuel oil deficiencies are extremely serious even now, and may well become critical as the war drags on. Japan's practically inexhaustible coal resources, however, are a factor tending to ameliorate her oil situation.

Japan's Heart Weakened by Shipping

As has been said, steel is the critical index of Japan's endurance. In the matter of steel ores, she is heavily dependent upon the mainland areas; she possesses little scrap iron to augment her smelted production. Her total rolling mill capacity is reliably estimated at about ten million tons yearly—about 15 per cent of that of the U. S. Although she has accumulated some reserve at home, it is not considerable, and the cutting off of her supplies from Manchuria, Korea, and China will mean rapid starvation to her steel industry, with attendant fatal shortage of heavy weapons and ammunition.

In broad outline, this "inner citadel" is the heart of Japan's war machine—still beating strongly, but weakened by loss of shipping, and desperately dependent upon steel and petroleum. Let us look at the approaches to it—the roads which we must take to get within effective striking distance.

There are four broad roads to the heart of Japan. They may be called respectively—

The Philippines Road
The China Road
The Siberia Road
The Aleutian Road

We are battering at the gate to the Philippines Road now.

In China, we must establish a tremendous stockpile to support large scale operations before we can advance along that route. At present, China is extremely difficult to supply. She can be reached effectively only via the route from India and Burma, or from her coastal ports. The India-Burma supply channel is far too strictured. As for her coastal ports, these are all, currently, in Japanese hands and the invader's recent successful linking up of his forces south from Hankow to Hongkong has increased the difficulties attending any effort to punch through to Chungking. Nevertheless, it is an inescapable "must" for us to thrust our main supply channel to the Chinese Armies. The tremendous military manpower of the country must provide a major element in our final assault on the enemy citadel; and we will have to supply them with munitions and equipment.

Handicaps in the North

As for the Siberian road; the land mass is adequate for the mounting of a major offensive, and the base and material facilities are already largely there, but Soviet-Japan neutrality estops any advance along that route. Whether or not these relations will change with Germany's defeat, remains to be seen.

The Aleutians provide a chain of islands leading direct to the Japanese heart from the northeast. Topography and climate militate against adequate development of these facilities in time to permit major participation in our offensive phase of this war. These factors are similarly highly unfavorable to extensive military operations.

There remains a fifth avenue of attack—the air route; but it provides no road by which forces capable of delivering a deathblow can be brought

into position. Exaggerated claims for the effectiveness of strategic bombing have led to a rather widely held misconception that air attack alone may prove decisive in modern war. Such, unfortunately, is not the case. The contribution of the air elements to the successes of our forces in the Pacific has been invaluable. Aircraft have proved an indispensable adjunct, but their role in the Pacific as in the European theater, has been, and will continue to be, one of support of the surface forces—be they seaborne or ground forces. The current B-29 raids are important and effective factors in slowing the Jap industrial war effort; they will increase in scope and tempo as we advance. But the war with Japan will underscore again what has been so clearly written in the European war; there can be no victory through air power alone.

The ultimate objective of the United Nations in the Pacific may be stated as the complete defeat of Japan, i. e., her unconditional surrender. There is, however, the further purpose of this war; that Japan shall be so stripped of her resources to wage war that she cannot again embark on a career of aggression and rape. In order that this objective be realized, it will be necessary to reduce the Japanese Empire to its original territorial scope in 1854—the four main islands of Hokkaido, Honshu, Shikoku, and Kyushu. This program involves either the expulsion of the Jap from all his current holdings on the mainland of Asia, or the cutting of his lines of communication to his forces on the continent and the subsequent elimination of those forces as armies. To what extent in our final campaign will we employ direct frontal assault on the coming battlefields of East China, Manchuria, and Korea? To what extent will we employ isolation of those areas from Empire support, and the more leisurely elimination of Jap forces thus encircled? These are questions to which only developments as they occur can give the answers; Jap reaction conditions the lines of our strategy. One thing appears reasonably certain; the enemy will not surrender, nor will he withdraw voluntarily from his China conquest. Upon this premise he must be driven out or cut off and then destroyed.

It is well to repeat; the Japanese nation will not quit. No Japanese position has been surrendered yet in this war; they die where they are. It is out of the question to annihilate the Japanese race, so that the possibility becomes a very real one that there will be no formal peace in the western Pacific for many years to come. Driven in upon his four islands, with his fleet and air force destroyed and his access to steel, oil, and rubber gone, the world may well look upon a snarling, still defiant Japan, hemmed in by United Nations power and requiring the continued maintenance of her steel cage long after negotiated peace has spread over the civilized remainder of the world.

Some Facts About Formosa

Thirty years ago the Japanese started arming their island of Formosa. They since have built it into the most formidable fortified area in their empire, and it became the arsenal for the southward dagger-thrust Japan had planned even while she assured the world of her peaceful intentions. Formosa has ammunition, fuel oil stored for coastal ships, aviation gas, industrial alcohol, ship repair yards, chemical plants, weather observatories, hydroelectric power units, aluminum units, aluminum mills, and cement works. It is an autonomous air and navy base center, a giant industrial production unit, a rice bowl and granary, and was the springboard for the Japanese plunge of December 7, 1941.

Allied control of Formosa would disrupt Japanese shipping lanes. The Japanese are aware of this. The jagged and mountainous coasts have been ringed with gun emplacements. The treacherous channels and navigating waters have been mined. New antiaircraft equipment has been brought from Japan. Forced labor battalions of natives have been organized.

I can think of no island outside of Japan which threatens greater military might—a relay, redistribution, and repair installation base. Repeated attacks on Formosa can lead to panic in the Tokyo government.

I know two of the Japanese governors of Formosa assigned the task of making the island an aerial highway and warehouse fortress. One admiral, Sankichi Taskahashi, now commander of the Kure Naval Base, told me in 1937 that, when war broke in the Pacific, he would control Formosa and direct the attack on the Philippines. In December, 1941, he was the naval garrison commandant. His recent successor is Admiral Kiyoshi Hasegawa, who pledged to Hirohito that "not a single Japanese will evacuate Formosa."

Unless there is surrender, the occupation of Formosa can be a long and bitter hand-to-hand fight in the island's mountains, caves and forests.—JAMES R. YOUNG, King Features Syndicate.

If You Want Close Air Support

Here is an airman's viewpoint of what is necessary to provide close integration between ground troops and those who fly air support missions. *By 1st Lieutenant Leo B. Pambrun*

IN amphibious support operations, Air's function is twofold: to protect friendly forces at the objective from enemy air and surface attack, and to support landing forces in their assault on the objective.

Assuming that we can fulfill the first function adequately, it's the close support that Marine Air can give Marine Ground that we're interested in now. You want this support to be close, and we think we know what you fellows on the ground are up against.

To give you the really close support you want, our missions have to be integrated with yours so closely that it isn't thousands, or even hundreds of yards that count, but just *yards!*

Such support is of necessity dangerous, and we know that in order not to botch it, we've got to watch the clock on our strikes—not the minute hand, but the *second* hand. We've got to *find* the target you call for striking. We've got to know what it is. We've got to *hit it on the button.* Failure to do this, every time, means more than simply missing an objective.

So, conscious of the confidence you are putting into our missions, we place before you these problems. Our joint understanding and action on them will insure the sound effectiveness of close support between Marine Air and Marine Ground.

Air Support During the Landing

Let's take the landing operation, our first contact with you in close support. You're coming ashore in landing craft. Ashore there are enemy pillboxes, enemy blockhouses, enemy entrenchments, and enemy troops—all knocking themselves out to keep you from landing with an effective team. Air takes over from naval bombardment, and pinpoint-bombs the blockhouses, pinpoint-bombs the pillboxes, rocket-bombs the cliff positions, strafes the entrenchments from steep angles that dig *into* the trenches, strafes in continuous attack from low levels that sweep the beach area clean of effective enemy personnel above ground.

Marine Aviation can maintain such support right up to the time you let down your ramps, wade ashore, and get into fighting trim on that beach!

Once ashore, your tactical deployment begins. Now as the advance inland begins, the ground situation loses its clarity and pattern to us in the air. Yet, for a day or two, until your artillery lands and takes over, our close support can be vital to you. We can't *see* what's going on; your clothes blend in with the landscape, and even a two-battalion front engaged in fire and movement shows up only as much as the dust it kicks up. Remember, we orbit high to avoid at least light AA, or if low, we move at 300 knots or better. It's hard to see.

Mark Your Lines

So, you call for strafing attack on a particular zone in front of the 2nd Bn. Air Support Commander interprets your request in terms of reference points from the air to us, and in we come; but you want *close* support—you want that strafing mission so near your own lines that you can rush in at the end of it and dig the Japs out with your bayonets. That means we must strafe as close as 200 yards, or closer to you. Do you realize what a snap judgment of 100 yards is at 300 knots from the air? It's a hairsbreadth!

Now, if you have panels up there in front, and your men are in a position to display them on command, and you're in *open* country where they may be seen, okay—although even then it may take a dummy run for us to be sure.

If it's a clear, still day, you may lay smoke along your front lines; that's much better, and we'll certainly see it—if we're in the vicinity when you lay it. Knowing where your front lines are, definitely, we can lay a strafing mission down within 100 yards of you and you'll never feel it, but the Japs within spitting distance of you will get the *full* effect of the 6-50s each F4U carries!

And, sometimes, knowing how effective even dummy raids by aircraft can be (the Japs don't *know* whether it's a dummy or not, and play safe by ducking), your ALO may call a real strike to be followed by a dummy run, so you can get up and move at the end of our *real* run, while the Japs cover under the dry run that follows.

Timing Is Highly Important

But this brings up another difficulty we experience in the air. Timing! We know you've got to do a lot of phoning, and complications in communication must be taken into consideration. *You* know that, too; but further—you must consider the time it takes *us* to get the word, to arrive in the vicinity, to orient ourselves, find the area, and get in position to finally come in on your signal. We may be orbiting over you, or several miles away from you.

In originating your order, think backwards, if you will, from the time that that strike will be

made. Think about all the things necessary to *coordinate* it.

If you simply tell your front lines to "put out smoke," and they do so whenever their respective units *think* it best, our planes aren't going to see a thing when they get there, or, if they do, the chances are the signal will be spotty and incomplete, forcing us to rush our peel-off to the point of seriously affecting our accuracy.

The thing to do is to give a time when you want that strike. Say fifteen minutes or longer, if possible, after initiating the request through your ALO. Then, on an okay that you'll get it, advise your front line commanders, with an eye to your watch always, *exactly* what time to lay that smoke out, or other markers.

Identify your lines or the target *at a precise moment*. Leave it up to us to be in the right position to watch for it, come in on it, and properly *hit it squarely*.

Give Full Description For Strafing

In ordering a strike, don't forget the *necessary* component parts of your request:

What type of air support do you want? Bombing? Strafing? Rockets? What is the target? And we don't mean "On that ridge to our front," or "300 yards from the road." We mean, what *grid square* is it in, and which corner of that grid square; so pinpoint it to the finest possible degree.

What is the *time limit* of requested support? If you've got mortars and artillery firing on a position, and front line troops ready to rush in, we want to know when all this is going to break up, and start in again; don't try to anticipate during our run; give us a time schedule—say from 1315 to 1330 to do the job; we'll arrange our maneuver to accomplish the best job we can in that time, and be *out* of there on the dot so your artillery can commence in safety at that instant!

Your Lines in Relation to Target

And, let us know definitely where your lines are in relation to the target. Having let us know, don't change their position until we're through the run—we may come in from *any* angle—but we'll do it with an eye to those reported positions; keep them static if you can, or report any changes to us immediately.

Give us any extra recognition information you can, too. Don't forget, we can't see much from up there, and our attention is riveted on locating and bee-lining the target. It's only "in passing" we want to see your markers, only as a guide—we're coming in to *hit a target*.

In asking for a particular close support strafing mission, give us full information on the target.

Planes strafing Japanese machinegun nests as assault troops head for a Makin Island beachhead follow a carefully timed and executed support plan for ground activities.

Our strafing of an area when personnel is above deck is usually pretty shallow, so the bullets can sweep like grass cutters along the ground. But, when they're in trenches or emplacements, we come in at about sixty degrees, to make our shells dig *into* those entrenchments and do a job. That's *why* we want you to *tell us* when "the enemy on that ridge" is in trenches or emplacements.

We'd like to know if "High ground to the front" is an ammunition dump, too, for it may mean lives and planes to us. You see, many bombing missions come in steep and low; against ammo such a run would be "dumb and sappy," for the blast effect would demolish the bombing plane, or surely the next plane coming in on it—probably both. If you tell us it's ammunition, we'll increase the interval between planes, and come in so we can pull out at about 2,000 feet.

It isn't that we mind the risk any more than you do. We don't, *provided* you tell us all we need to know about the target, all *you* know about it. Let's say we can't pick up a target from on high; you've told us exactly where it is, and that it's camouflaged. Okay, in we come—really low, and really slow. This makes us some kind of meat for machineguns and light AA, but it's up to us to *find* that target, and then come in and *get* it. We'll take the risks; just you *be sure* of your coordinates!

Now, suppose that gun emplacement you want us to hit is of the enclosed variety. By telling us it's enclosed, you automatically dictate our tactics. On such an emplacement, we come in flat for individual strafing runs, and, if your ALO will tell us on which side of the emplacement the opening into it is located, we'll pour our fire right in there—we can actually do it.

Front Line Designation

Your ALO has to keep on the ball to be sure that when you move forward the men pick up the panels they laid out for front line markings. Panels, left behind, obviously cork up the bottle on future strikes.

If there are woods, or thick underbrush, we can't see panels well at all. Especially when they are displayed at various angles or vertically from bushes. Often after two or three passes, we still can't spot them. So, in good open terrain, where you use the panels, be sure to lay them out plain, and horizontal to your lines.

If these conditions are impossible, use *smoke*. Use it up and down the lines *at the same time*, and make that time predesignated in plenty of advance to let us (1) get up there, (2) maneuver to an advantageous position, and (3) be *set to go* when the flares, grenades, pyrotechnics, or whatever, announce your position.

It is very confusing, too, when the *entire* line is not outlined at the same instant. We're aware up there that front lines are fluid. We know that the designation will never be a straight line after the advance has progressed any distance at all, so we look for a snake line down there, and we hate to see holes in it. Again, timing. If front line people have enough time to organize their marking details, and air has enough time to come in and be in position, the deal is simple.

Work of the Air Coordinator

We have an Air Coordinator up there with us. He is a Naval Aviator, usually a group or squadron commander, acquainted with the problems we have, and also well acquainted with the ground layout, because he has been observing long before we came on station and he's been following the progress of battle. SAC often turns the direction of our mission over to him. This is further assurance for you, for, if we aren't *sure* of our orientations, he'll define it for us, either by passing down over the target himself, marking it with smoke, or actually leading us into it.

We keep the sharp lookout up there for you, too, in the presence of the Air Observer. If it's a small area of operations, he may be cruising along at 500 feet. He reports observations of military significance to our SAC, and many times he can see operations back of enemy lines that mean development of some threat to you. Or he may spot fire from enemy artillery. Through SAC and your ALO, you are informed in time to formulate plans to break such threats up before they become operative.

Of course, you may request a mission and not get it. That's because your higher echelons monitor all your requests, and, if regiment or division stops a battalion request, it isn't our fault; we first learn of your trouble when SAC gives us the proceed.

But, at the beginning of an attack by air, the Commander Support Aircraft will inform ALO of the beginning and end of the attack. After the strike, that ALO of yours should report the results back to us via SAC. By the time the strike is over, we're out of sight contact, and, in close support particularly, we're anxious to know "Are we on?"

The ALO should keep SAC up on the tactical developments of the ground situation, too, so he can give us the scoop as it transpires. If Able Company moves up a hundred yards, we want to note it on our map—we're feeling like a part of your battalion, or your regiment, when we're supporting you *close*, and we want to know *always* where *all* of you are.

ALOs Keep Tab with Air

Furthermore, we'd like the ALO to "keep on good terms" with the liaison officers for artillery, mortar, naval gunfire, and all the other stuff that's

floating through the air, among us aloft. Maybe good coordination can keep some of the strange holes out of our wings on those close support missions. We don't mind Japs doing it, but hate like hell to find our own ordnance mingled with our fabric!

Another thing that's essential for us—good maps, photographs preferred, but gridded and detailed just as closely and accurately as possible. And, too, we *must* use the same maps and photos as you are using in the front lines.

Suppose you call down a strafing run on enemy troops in 356ABC, and we pinpoint that line, but on the way in find a trucking park or something else that looks unlike the situation we *should* find there. It probably was an error in estimating position. We'll try to see it in time to hold our fire. and make a report. But don't count on our being able to do that every time.

Moving troops look like small ants scurrying around. We can't tell who they are, or, usually, which way they're going; and trucks are like doodlebugs. But, when we see things like that, where they're *not* supposed to be according to the information you give us, we'll *report it*. It may not be yours after all; it may be a new target.

A Corsair's bombload helps foot soldiers fight an isolated enemy position on Peleliu.

Don't become impatient if you call for Air Support *right now* and don't get it just that fast. Remember, your wish is usually father to the deed, but the birth pangs extend over quite a nervous system of wires.

First, your ALO has to digest your request, write it down in message form, adding in the various kinds of information each request must include, then wind up his machine and try to get SAC.

Providing SAC isn't tied up with umpteen more battalion ALOs or regimental ALOs or Flight Leaders, or Air Observers, or Air Coordinators, or a number of people aboard ship or at Division Hq., he'll come through for the message.

Furthermore, SAC has to locate the required target on his map, translate it into air talk with reference points, etc., and, *if* he has the aircraft with the proper armament for such a mission available, he'll pass on the word by radio. Air gets it, checks its maps, finds the target area, speeds for the location—and your close support is coming in on the fastest possible wings. Fastest possible, because we're assuming no difficulties, many of which you *may* run into.

So—because timing is all important to *you*, consider it in the light of these possibilities. Give us *time*. If you do, we promise to be *"on"* target.

For Bombing

The best targets for bombing are buildings, fuel and ammo dumps, large gun emplacements; targets easily seen and identified. Bombs are dangerous things to play with in close support. Near misses are no good, either, in bombing. We've got to be "right on," and, whenever possible, we'll do our bombing *parallel* to your front lines.

When you want personnel hit, and hit good, we like to use fragmentation bombs against them. Frags are excellent, we find, against vehicles, too, and light structures; and, when we come in very low, we use Parafrags, because the slight delay in their striking enables us to be out of range, and because we want them to hit nose down.

When you tell us in your message requesting close air support that the target is "closely packed small buildings," instead of simply "buildings," it means much to our SAC. He knows that closely packed edifices are meat for incendiary clusters, so he calls on planes so loaded for the strike.

Suppose there is a row of pillboxes, four of them, let's say, on the near slope of Charlie Ridge. You determine that they are heavily defended, but you don't see personnel running around—and you want Air to knock the positions out. *Tell us* they are defended positions, and the nature; *explain* to us that personnel is not visible above

the ground. That dictates the selection of bombs for our strike.

Rockets have proved a strong weapon for air, just as they have for ground, and their use has a definite place in the close support picture.

Suppose a small gun emplacement, strategically located, is raising merry hell with Able Company, who screams to have it knocked out. To do so means laying demolition right in there, on the button. A bomb "in the vicinity" would only shake them up, but they'd scarcely miss a beat in their rate of fire. So that's the time for our rockets. One is enough, too, and we can set it practically in the muzzle of the Jap gun!

The more details you can give us in your request the better we'll be able (1) to choose our weapons, and (2) use them.

One other thing that's important to us is knowing what *kind of vehicle* you want hit on "that road." Is it a scout car, a truck with supplies, an armored car, a tank, or a halftrack? You see, if it's armored, we might not knock it out with our rocket—if our rocket is instantaneously fused. Or, if the object is called to us as "pillbox," and turns out to be a *concrete* pillbox, that fuze won't work 99 per cent of the time, either. For such targets, *delayed* fuzes are required. If the target is adequately described, and if, of course, we have the equipment, we can do the job properly.

In asking our close support for your landing operations, and in the establishment of your objectives ashore, keep in mind always the other arms of support you have at your disposal—don't abuse the presence of air support.

Request of us targets that cannot be seen or fired by the ships standing offshore, or by artillery to your rear. VMO planes can do a spotting job for Regimental Weapons.

Request of us targets particularly vulnerable to our machineguns or 20-mm, if we have them, or to our rockets or heavy bombs—targets that you want *immediate* action on, that must be fired *quickly*.

If you can, lay WP on those targets you want us to pin-point. It's added assurance that we'll hit them, because white phosphorus stands out like a sore thumb from the air.

But—don't put that smoke out before we can get in the area, and in a position to begin our run. If there's any wind at all, even WP is going to drift and disintegrate rapidly.

And the same identical thing goes for marking your front lines—even more so when you're using smoke grenades (and *colored ones,* which cannot possibly be confused with smoke or dust of battle, are essential), for grenade smoke dissipates swiftly. In a few seconds it's invisible from the air in any breeze at all.

One last point: In your planning, remember that air missions called close to your front lines will result in much smoke and dust, particularly if we use bombs. This may operate to your advantage, or otherwise. It's up to you.

The foregoing is based on lessons learned from combat experience to date, and from live-run training of close support types. True, Navy procedure has not, to date, allowed such close support by air as herein outlined, but Marine Aviation, in collaboration with ground units, has proved at least to their mutual satisfaction the excellent workability of close support doctrine.

If one day, close support as executed in these training maneuvers, becomes an actuality in combat, it is hoped the suggestions herein may prove mutually beneficial.

War Kit in a Coconut

Versatility of the coconut is studied avidiously by Marine airmen undergoing training in the Pacific, proving that even arboriculture can be turned to wartime usefulness, particularly where aviators lost on a jungle island are concerned. Among the uses to which coconut trees are being put by Marines are the following:

1. Dried leaves of the tree make excellent torches and are used at night to attract fish for easy capture.

2. Green leaves can be woven into baskets, containers, and waterproof shelter mats.

3. The nut itself can be eaten in large quantities when it is green. When ripe, however, the meat or the concentrated milk is a natural cathartic. From grated green coconut is squeezed a delicious cream used as a flavoring. This cream contains oil which rises to the surface upon exposure to the sun and becomes a sunburn lotion or fuel.

4. Copra, or dried coconut meat, can be used as an emergency food or as a source of light. Small pieces pierced with a stick will burn like a candle.

5. Sections of green coconut husk tied on the feet with hau bark are comfortable makeshift shoes that will last two or three days on the sharpest coral. Dried, the husks are used to start a fire or keep a fire smouldering when an open flame is undesirable. The husk fibers can be woven into useful cord or rope.

6. When extracted unbroken, the shell of the nut is a natural canteen. A small opening made in one of the eyes will let in the air and eventually the meat will rot and can be washed. A wooden plug completes it. The very hard pieces of broken shells may be used as scrapers, spoons, or dishes.—Sgt. O. W. Nelson, Jr., Marine Corps Combat Correspondent.

Naval War in the Pacific in 1944

The tremendous accomplishments of our naval forces in the Pacific during the past year are told in this article, with a chronological record of our offensives.

THE year 1944 saw a great amphibious offensive unfold in the Pacific. The forces of the United Nations, spearheaded and sustained by the United States Pacific Fleet, drove in massive lunges through Japan's ill-gotten conquests, moving 1,830 miles westward from Tarawa and Makin to anchor their armed might securely in the Marianas. From there systematic bombarding of Japanese industrial centers has begun.

From the jungles of New Britain, the front was pushed 1,600 miles north and west to the Philippines. As of today, the enemy's defensive is from Paramushiru, in the northern Kuriles, to Manila, 2,780 miles in extent, and is within effective range of our fleet and shore-based aircraft. To U. S. offensive forces in the Marianas and Philippines, as elsewhere in the Pacific, a constant procession of cargo vessels is carrying thousands of tons of supplies. These two points are 4,938 miles and 6,056 miles, respectively, from San Francisco. No military operation has ever embraced such dimensions.

There is evidence that the enemy counted on slow and painful forward steps by our forces, instead of swift advances. Radio Tokyo told its listeners recently that speed is an "outstanding trait" of the American people. "The enemy has come pressing upon us," Tokyo explained, "skipping three or four steps in one jump, for the step-by-step method was not speed enough for him."

In seizing positions in the pivotal Philippines, a strategic victory has been consummated. A string of island bases along the southern perimeter of Japan's inner sea has been established. From them can be launched drives against the home empire. At the same time, Japan is being cut off from the rich military resources of the Indies—the empire she coveted, won and planned to exploit.

A Battle They Had to Win

Japan's leaders are well aware of the strategic import of the battle of the Philippines. It is a battle which, according to their own propaganda, they know they must not lose. This was indicated when the Japanese Imperial Fleet, long in hiding, steamed forth in a supreme effort to destroy the forces covering the beachhead won on Leyte. The U. S. Navy then came to grips with, and thoroughly defeated, a major force of the Japanese Navy in the three actions of Surigao Straits, Samar and of Cape Engano.

These three actions constituted the Second Battle of the Philippine Sea, the culminating sea engagement of the year, which was symbolic of the destruction wrought upon the Japanese military machine throughout the Pacific.

During the year, U. S. surface ships and aircraft sank two of the enemy's battleships, five of his aircraft carriers, seven of his heavy cruisers, well over 300 cargo ships and transports, and about 200 other vessels, with the grand total reaching 550 ships, according to tentative figures now available. These figures do not include any ships probably sunk or damaged, or any ships destroyed by our submarines. They do not include any of the small cargo craft sunk. And they refer only to activity in the Pacific Ocean Areas, exclusive of the Southwest Pacific command.

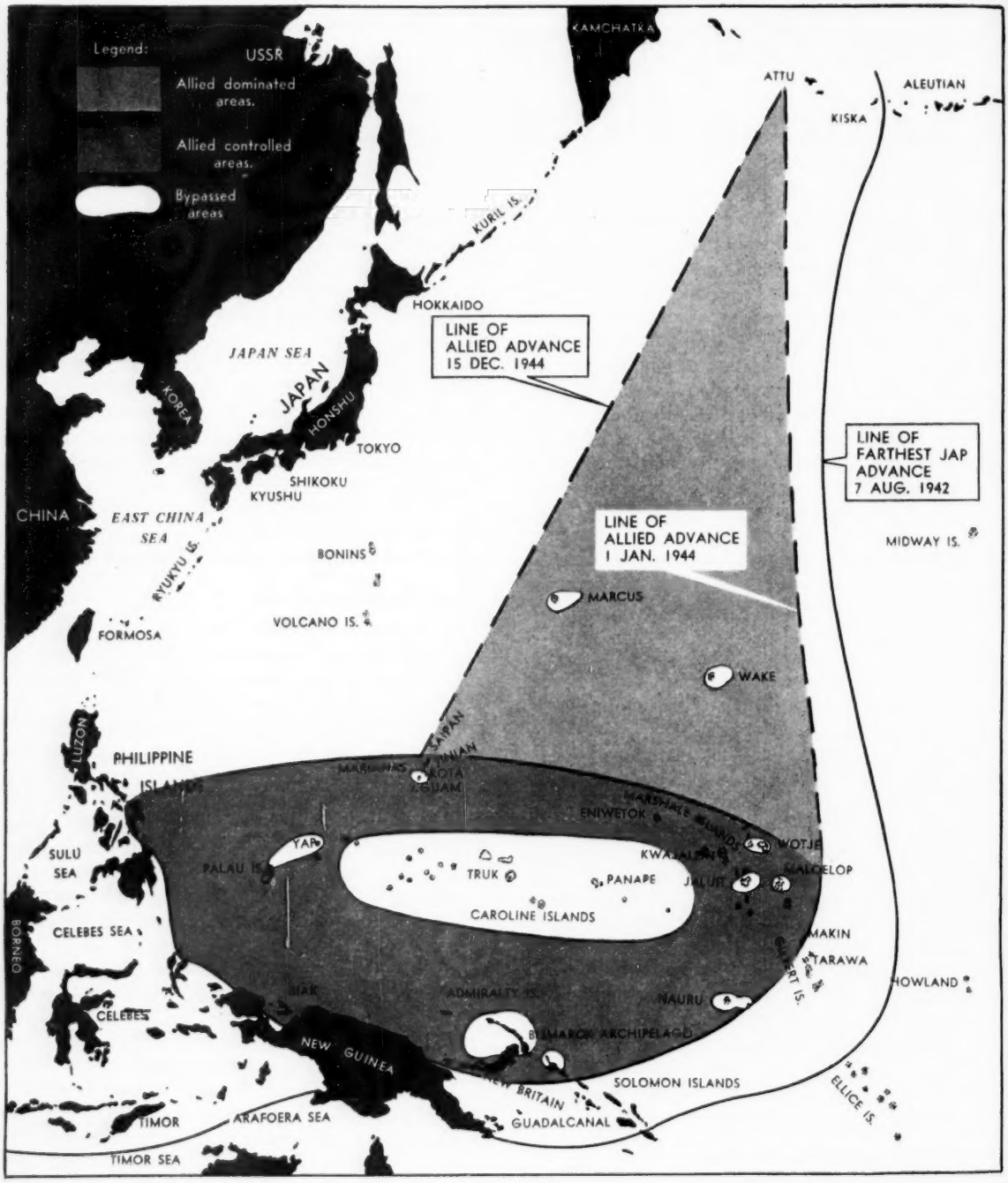
Vast Tonnage Sunk

U. S. submarines sank 468 Japanese ships during the first 11 months of 1944, according to Navy Department communiques. This total includes four light cruisers and 17 destroyers. Forty-three tankers, 377 cargo ships and transports were sent to the bottom. In December, an enemy aircraft carrier was sunk by a submarine. The tonnage of Japanese ships sunk during 1944 by U. S. submarines alone is in excess of 2,500,000 tons. The number of ships damaged by submarines has not been announced.

During 1944, 6,650 enemy aircraft were destroyed in the Pacific Ocean areas. Of these, approximately 5,450 were destroyed by carrier aircraft, and 1,200 by land-based airplanes. Of the year's total, approximately 3,975 enemy aircraft were destroyed in the air, and 2,675 on the ground. These figures also do not include reports from the Southwest Pacific command.

No review of the year would be complete without mention of our land-based air forces. As we have moved the battlefront steadily across the Pacific, we have drawn after us a net of air and surface blockade, entangling, pinning down, choking the by-passed Japanese holdings. An estimated 225,000 enemy troops, and strong enemy bastions have been reduced to impotence or to ashes.

In addition to ceaseless patrolling by surface units, many hundreds of land-based air strikes have been necessary to enforce this blockade. Many of these strikes were in force, with heavy bomb loads dropped on important targets. Others were small. When practicable, they were closely coordinated with carrier-based attacks and amphibious landings. Together with our surface patrolling, these air strikes destroyed enemy



Naval and amphibious offensive operations of 1944 narrowed Japan's defensive front to the 2,780 miles extending from Paramushiro, northern Kuriles, to the Philippines.

strength in by-passed zones and made possible our rapid advance.

The year 1944 has brought success and added momentum to our advancing forces. But the Pacific is an ocean of fantastic distances. The road to Tokyo is rough and long. The enemy has just begun to defend his home empire. We have just begun to meet the tremendous problems of logistics, of supplying our forces—problems that grow greater with every forward step.

The vast quantity of material required to prepare the way for our advancing troops can be measured in terms of ammunition. Our naval forces alone used 36,260 tons of it in the Marianas campaign for air and surface bombardment. This does not include any ammunition used by troops ashore. At Peleliu, surface and air bombardment consumed 9,000 tons. A myriad

other commodities are required to supply and sustain our advancing forces.

The decisive battles, the greatest battles, the hardest battles of the war in the Pacific are still to come. They must be fought with supreme effort on the part of all of us; in factories throughout our country, across the long sea lanes, and in the forward areas, where the men of all our armed services, and those of our Allies, are fighting—for the enemy, like ourselves, has just begun to fight.

Chronology of the War in the Pacific

JANUARY

31 December 1943-3 January 1944—A carrier force commanded by Rear Admiral F. C. Sherman, USN, made bombing, strafing and torpedo attacks on enemy cruisers, destroyers and other shipping near Kavieng, New Ireland.

1 January—Under cover of heavy air and naval bombardment, elements of the 6th Army under General Douglas MacArthur, Supreme Commander, Allied Forces, Southwest Pacific Area, landed at Saidor, on the north coast of New Guinea. The landings were unopposed, and control of the Saidor area and airstrip was soon gained.

8-25 January—Enemy troop and supply concentrations and staging points in the northern Solomons were subjected to six surface bombardments. Four were in broad daylight. There was no air or surface opposition, and negligible reply from shore batteries. Two strikes on Southern Empress Augusta Bay, two on northeastern Bougainville and one on Choiseul Bay were conducted by destroyers. One on the Shortland area was by cruisers and destroyers.

29-30 January — During the night the *USS Burns*, a destroyer operating with our naval forces in the Marshall Islands, encountered and sank an enemy convoy of four vessels, including a 6,000-ton oiler, a 4,500-ton cargo ship and two smaller vessels. U. S. carrier and heavy surface forces heavily attacked Jap bases in the Marshall Islands with unopposed occupation of Majuro atoll by Amphibious Reconnaissance Company of 5th Amphibious Corps (now Amphibious Reconnaissance Battalion of Fleet Marine Force, Pacific). Majuro was the first pre-war Japanese territory to be taken by United States forces. In preparation for main assault on Roi and Namur Islands in Kwajalein atoll, Marines landed on five smaller islets flanking Roi, meeting with little opposition. In preparation for assault on Kwajalein Island, at the southern tip of the atoll, by the Seventh Infantry Division, U. S. Army troops landed on islands flanking Kwajalein Island. Opposition was slight.

FEBRUARY

1 February—Fourth Marine division landed on Roi and Namur Islands, about 45 miles north of Kwajalein Island, in Kwajalein atoll. Seventh Infantry Division landed on Kwajalein Island.

1-6 February—Powerful force of battleships, cruisers, destroyers, carriers and land-based aircraft supported Kwajalein landings. Fleet air attacks were carried out also on other atolls of the Marshalls and on Wake Island. Roi, Namur, Kwajalein, Ebeye, Loi, Gugegwe, Bigej and Eller Islands, all in Kwajalein atoll, were captured. (Kwajalein is the world's largest atoll, 66 miles long, 18 miles wide and including more than 30 islets.)

4 February — Cruisers and destroyers commanded by Rear Admiral W. D. Baker, USN, bombarded Japanese installations on Paramushiru, in the Kurile Islands—the first surface bombardment of this Japanese base by our forces.

8 February—Organized resistance ceased on Kwajalein atoll. Japanese killed: 8,112, prisoners 437. Our casualties: 286 killed, 1,148 wounded, 82 missing.

10-12 February—Eniwetok bombarded by our carrier aircraft.

12 February—Arno atoll, Marshall Islands, occupied. No opposition.

14 February—First heavy land-based air attack on Ponape, base in the Carolines. U. S. and New

All dates are West Longitude.

For the months of January to July, inclusive, revised figures are used in showing our own and enemy losses. By "revised" is meant the figures arrived at as a result of assembling, analyzing and tabulating all the final returns—a process which takes many weeks after the action concerned. These revised figures often differ, to a minor degree, from the figures originally announced in communiques.

For the months of August to December, inclusive, revised figures are not available; that is, the figures used in this portion of the chronology are drawn entirely, and only, from communiques issued in that period.

The purpose of this chronology is primarily to list events occurring in the Pacific Ocean areas. However, the campaigns of the Southwest Pacific Area are, strategically speaking, an inseparable part of the Pacific offensive, and repeatedly during the year the activities of the two commands had a direct and important tactical relationship. For these reasons, the major events occurring in the Southwest Pacific Area are included in this chronology.

Zealand troops under General MacArthur landed on Green Islands, off southern New Ireland. Naval attack force was commanded by Rear Admiral T. S. Wilkinson, USN. Resistance was light. This thrust flanked Rabaul.

16-17 February—Enemy positions and installations on Eniwetok atoll were bombed and strafed by carrier aircraft and shelled by heavy surface units. Covering the Eniwetok landings, a U. S. carrier and battleship force struck a heavy surprise blow at Truk. On the 16th, our aircraft strafed and bombed airfields and enemy aircraft; and strafed, bombed and torpedoed shipping in Truk lagoon. Enemy air power was paralyzed; 129 enemy aircraft were shot down, 82 were destroyed on the ground, 70 were damaged on the ground, according to photographic evidence. (No Jap aircraft were airborne the second day of the attack.) Meantime, a force, including battleships and cruisers, made a sweep around the atoll, attacking Japanese merchant and naval vessels in the vicinity of Truk. There were few targets left by the 17th, and on that day our force retired. Sunk by our air and surface action were 2 light cruisers, 3 destroyers, 2 patrol craft, 1 ammunition ship, 8 freighters, 7 oilers, 2 barges. Damaged were 16 other vessels (only 14 out of a total of 55 vessels at Truk escaped undamaged). This anti-shipping assault was the heaviest yet delivered by our fleet air arm in terms of bomb tonnage, sorties flown, and targets available. Our losses: 25 aircraft lost, 1 ship moderately damaged.

17 February—Eniwetok landings began with establishment of artillery positions on islands flanking Engebi Island.

18 February—22nd Marines and 106th Infantry seized Engebi Island. Opposition was light.

19-21 February—Eniwetok Island was invaded and seized by the 106th Infantry Regiment and the 104th Artillery Battalion.

22-23 February—Parry Island, Eniwetok atoll, was invaded and seized by the 22nd Marines and the 4th Tank Battalion. This completed our control of Eniwetok atoll. Japanese killed, 2,665; prisoners, 66. Our casualties, 169 killed, 521 wounded, 26 missing.

17-29 February—U. S. destroyers bombarded Kavieng, New Ireland and Rabaul, New Britain, and conducted anti-shipping sweeps in the Bismarck area. These were our first surface bombardments of these enemy bases. There was no air nor surface opposition, and only slight resistance from shore batteries.

19 February—On or about this date, the Japs evacuated their air forces from Rabaul and virtually stopped defending the Bismarcks with aircraft. Interception of our aircraft over Rabaul virtually ceased after 19 February.

20 February—Aircraft from our carriers strafed and bombed enemy installations on Jaluit atoll, Marshall Islands.

21-22 February—A carrier force under command of Rear (now Vice) Admiral Marc A. Mitscher, USN, bombed and strafed enemy installations on Saipan, Tinian, Rota, and Guam, in the Marianas. Air battles were fought with enemy aircraft. Virtually all of the enemy's aircraft in the Marianas were destroyed or damaged (total about 135). Of the few enemy ships located, 2 were destroyed and 9 damaged. Our losses were 6 aircraft.

28 February—Troops under General MacArthur landed at Los Negros, in the Admiralty Islands, from a naval force commanded by Rear Admiral W. E. Fechteler, USN. This advance into the Admiralties was the first step toward development of strategic airfields and a major fleet anchorage in these islands. It further flanked Rabaul. Resistance was light and the Momote airstrip was quickly seized.

MARCH

4 March—Mindiri, 30 miles west of Saidor, on the New Guinea coast, was invaded by troops under General MacArthur.

7 March—Jap ground forces attacked our positions in Torokina area on Bougainville. Fighting continued until 25 March, when the Japs abandoned their effort and retired. Troops under the Supreme Commander, Allied Forces, Southwest Pacific Area, landed on Willaumez Peninsula, near Talasea, on northern coast of New Britain, 160 miles from Rabaul. Opposition was quickly overcome.

9 March—Wotho atoll, Marshall Islands, was secured.

11 March—Ujae atoll and Lib Island, in the Marshall Islands, were secured.

13 March—Lae atoll, Marshall Islands, was secured.

14 March—Manus Island, Admiralty group, invaded by troops under General MacArthur. Ships of the 7th Fleet supported with shore bombardment; aircraft of the Southwest Pacific air forces gave air cover. Lorengao airbase was captured in 72 hours. (Occupation of the Admiralty Islands was virtually completed by the end of April.)

15 March—B-24s of the Central Pacific air force made first land-based air attack on Truk. The island was not blacked out. Installations were bombed; fires were started.

16 March—Gasmata, on the south shore of New Britain, opposite Willaumez Peninsula, was invaded by troops under General MacArthur. No opposition was encountered.

17-18 March—U. S. destroyers bombarded Wewak, New Guinea. (This base and shipping in that area were subjected to heavy, continued, shore-based attacks from 11-27 March.)

18 March—Mille Island, Mille atoll, Marshall Islands, was bombed by carrier aircraft and shelled by heavy surface units.

19 March—Fourth Marines landed unopposed on Emirau Islands, St. Matthias group (75 miles northwest of Kavieng), thus completing the encirclement of Rabaul, Kavieng, and other enemy positions in the Bismarck Archipelago and Solomon Islands. Diversionary bombardment of Kavieng was conducted by heavy surface ships, which poured in more than 1,000 tons of shells. Operation was under general direction of Admiral William F. Halsey, Jr., USN, Commander, South Pacific area and South Pacific Force of the U. S. Fleet.

22 March—U. S. Pacific Fleet destroyers bombarded Mussau Island, largest of St. Matthias group, 15 miles northwest of Emirau. Ailinglapalap atoll, Marshall Islands, was secured.

23 March—Namu atoll, Marshall Islands, was secured.

24 March—Ebon atoll, Marshall Islands, was secured.

26 March—Namorik atoll, Marshall Islands, was secured.

27 March—Kili Island, Marshall Islands, was secured. U. S. Pacific Fleet destroyers bombarded Kapingamarangi (Greenwich) atoll, north of New Ireland.

29-31 March—In the deepest penetration yet

(Continued on page 70)

Aerial Warfare by Remote Control

Technical details of jet and rocket propelled bombs whose development is almost certain to have a tremendous influence upon warfare in the future. ***By PFC. M. H. CROW***

THOSE familiar with "flying bombs" have regarded them thus far as portents of things to come rather than as decisive factors in the present war. Secrecy necessarily veils not only complete details of what has been discovered concerning enemy use of these weapons, but also the Allies' own experiments to combat or copy them. What may be told of weapons such as "flying" or "robot" bombs, however, indicates that, were Germany not facing defeat at present, the V-1 and V-2 or their successors might be a major problem in the European theatre. Although inaccurate in striking definite targets, such weapons can constitute a bombardment force handicapped neither by weather nor lack of aircraft.

It is the V-1 and V-2 bombs that have made aerial attack by robot methods a reality, but Germany has used other types of "flying" or "robot" bombs. Technical details of operation of these weapons reveal an attempt to combine accuracy, or at least purposefulness, of fire with a long range. To carry this out, their experiments with bombs have consisted of two general types of remote control: (1) Those which have their course set at the time of firing and unalterable thereafter, and (2) those which have a type of continuous remote radio control provided from an accompanying plane. The first type of control, which is that used in the V-1 and V-2, resembles that of a torpedo. The second type, which has not been developed as successfully as the first, is more nearly that of a true "robomb." Glider bombs first used by the Germans in Italy are in this second classification.

The Jet Propulsion Engine

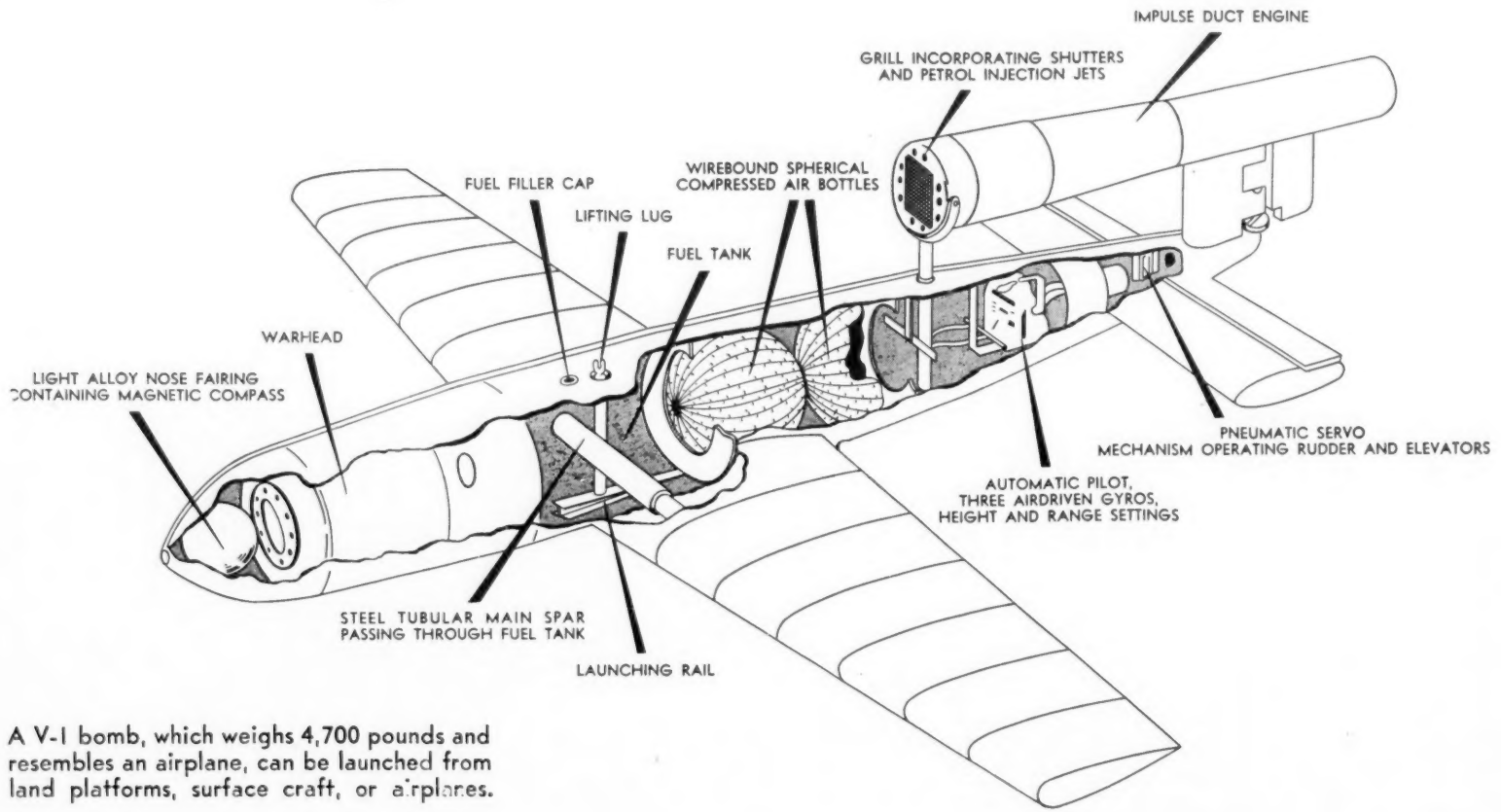
Application of jet and rocket propulsion theories to Germany's V-1 and V-2, the "Vergeltungswaffe" or "Vengeance" weapons, gave the range needed for inauguration of the "flying bomb." A study of the jet propulsion operation of the V-1 bomb, however, shows that it differs from that of a jet propelled plane, such as the Army Air Forces' P-59. On the bomb, an intermittent duct engine is mounted about thirty inches above the center of the fuselage, and has a nose cowling approximately twenty inches in diameter and a tail about a foot in diameter. At the front of this engine tube is a heavy steel vertical grill, on whose back is a series of reed-type valves which are instantly responsive to variations in pressure. Nine fuel jets, supplied from the fuselage, also are on this grill. Mixture of air and fuel from the valves when ignited by a spark plug provides the combustion impulse which drives the V-1 forward. The jet propulsion of the V-1 is simple, and serves the purpose for a pilotless plane. It provides a bumpy progress, which makes it impracticable for an occupied plane, however. A turbo-jet engine, such as that of the Army's P-59, is much more complicated than that of the V-1's intermittent duct. In the P-59, a turbine located on the operating shaft receives the heated air from the combustion chamber. The air hits the turbine blades with such force that it turns the shaft, revolving the compressor impeller wheel so rapidly that new air constantly is being sucked in. The jet propulsion engine of the V-1 is cheaper than that of a jet-propelled plane, and more practical.

How the V-1 Is Built

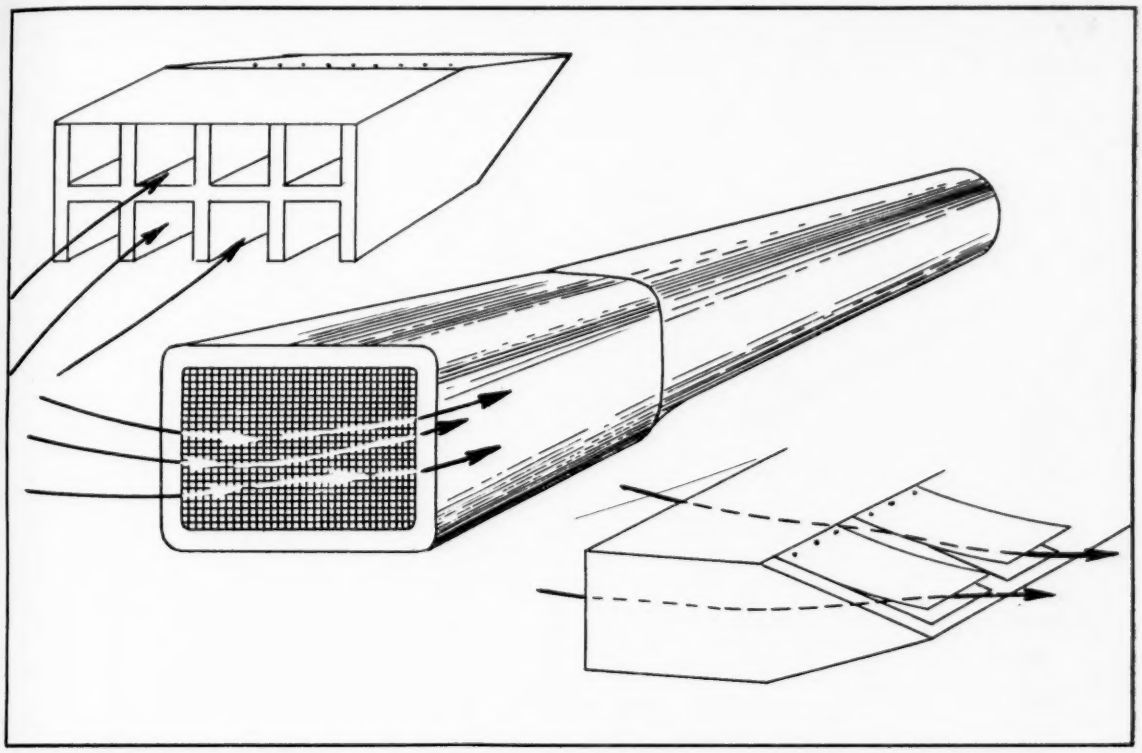
Construction details of the remainder of the V-1 are as follows: In appearance it resembles a small airplane, is approximately twenty-five feet and five inches long, and is steel constructed save for the extreme nose of the fuselage and the control surfaces, which are of light metal. When full of fuel and ready to take off, the bomb weighs about 4,700 pounds. The central section of the fuselage comprises the fuel tank with a capacity of 130 gallons. The main spar passes through a transverse sleeve inside the tank. Behind the fuel tank there is a compartment containing two wire-bound spheres which contain air under very high pressure. Further aft is a compartment housing the automatic pilot, and the fuselage terminates in a cone carrying the tailplane and rudder. To the front of the fuel container is bolted the warhead. The extreme nose houses a magnetic compass. The propulsion unit operates on a low grade aviation gasoline fuel which is believed to be forced from the tanks to the jets by compressed air from the spherical pressure bottles. The control surfaces comprise only a rudder and two independently or differentially acting elevators. The controls are operated by pneumatic servo-units coupled to an automatic pilot which is monitored by the magnetic compass in the nose. The altitude at which the aircraft flies is determined by a barometic device. The approximately 125-mile range of the bomb is controlled by a small windmill in the nose, the revolutions of which are set in such a way that when the bomb has traveled a definite distance, it is pushed over into a steep dive. This is caused by locking the controls and lowering small

(Continued on page 22)

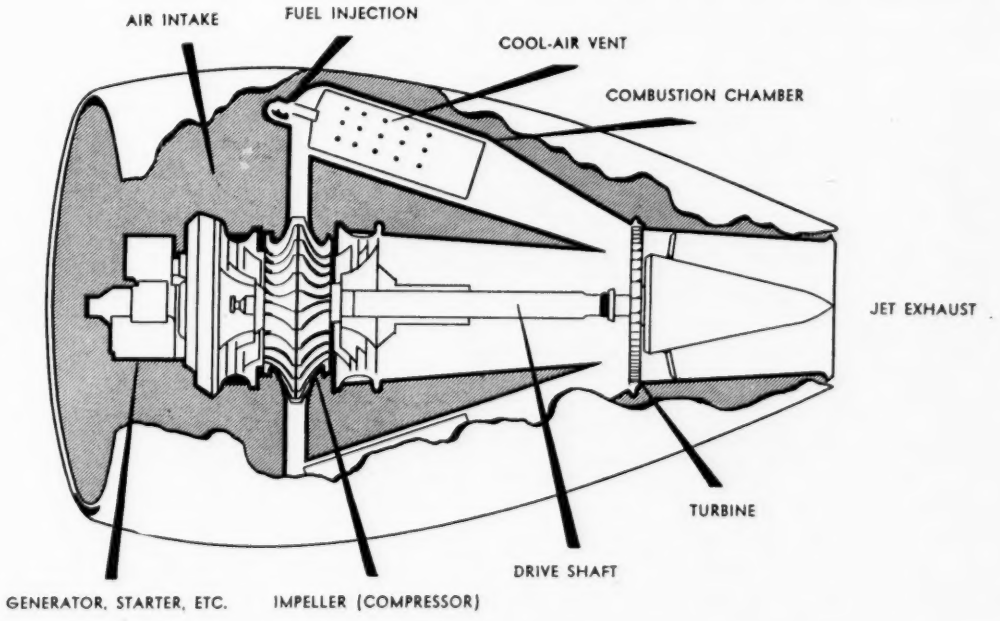
GERMAN FLYING BOMB V-1


IMPULSE DUCT ENGINE
GRILL INCORPORATING SHUTTERS AND PETROL INJECTION JETS
WIREBOUND SPHERICAL COMPRESSED AIR BOTTLES
FUEL FILLER CAP
LIFTING LUG
FUEL TANK
WARHEAD
LIGHT ALLOY NOSE FAIRING CONTAINING MAGNETIC COMPASS
PNEUMATIC SERVO MECHANISM OPERATING RUDDER AND ELEVATORS
AUTOMATIC PILOT, THREE AIRDRIVEN GYROS, HEIGHT AND RANGE SETTINGS
STEEL TUBULAR MAIN SPAR PASSING THROUGH FUEL TANK
LAUNCHING RAIL

A V-1 bomb, which weighs 4,700 pounds and resembles an airplane, can be launched from land platforms, surface craft, or airplanes.

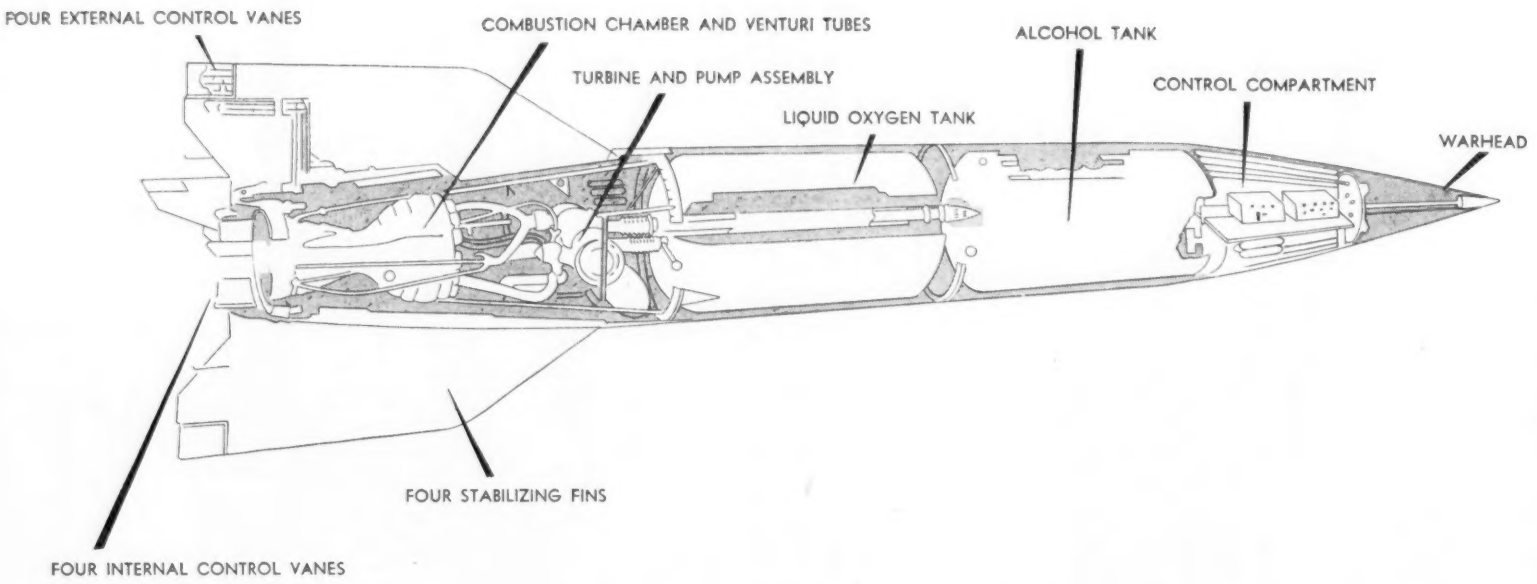


The V-1's intermittent duct engine operates on the principle sketched above. Through the grill comes air which, mixed with fuel and exploded, propels the bomb. Harmonica-like shutters of the grill close when interior pressure of tube is greater than that outside, opening when the reverse is true. The turbo-jet engine shown below is more elaborate.

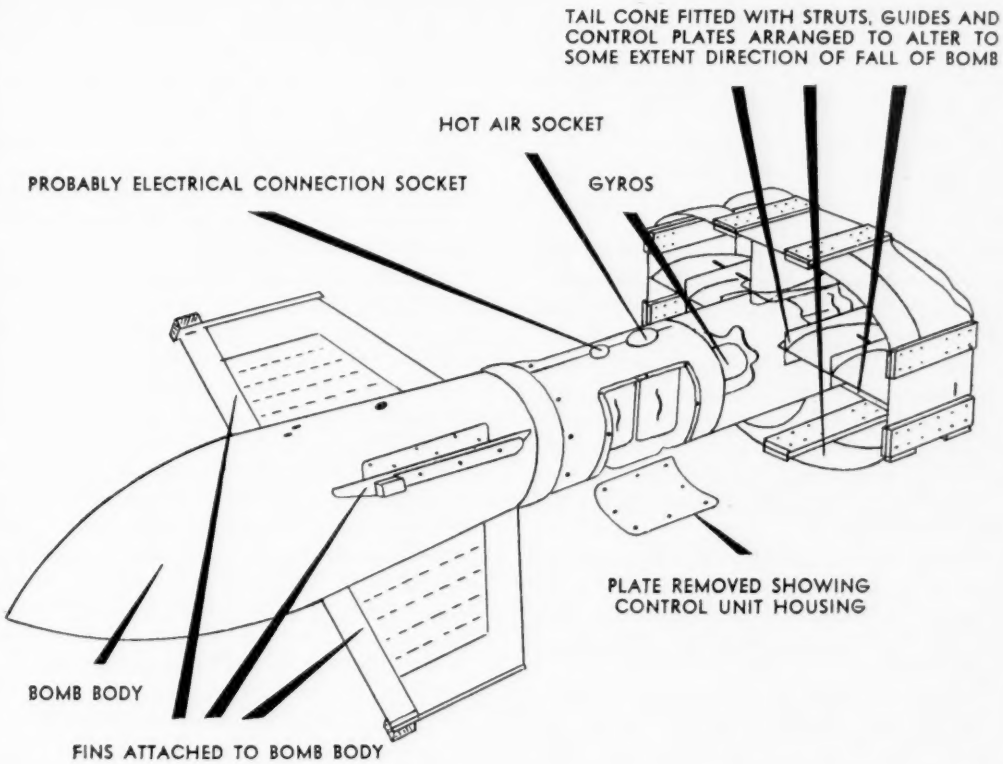


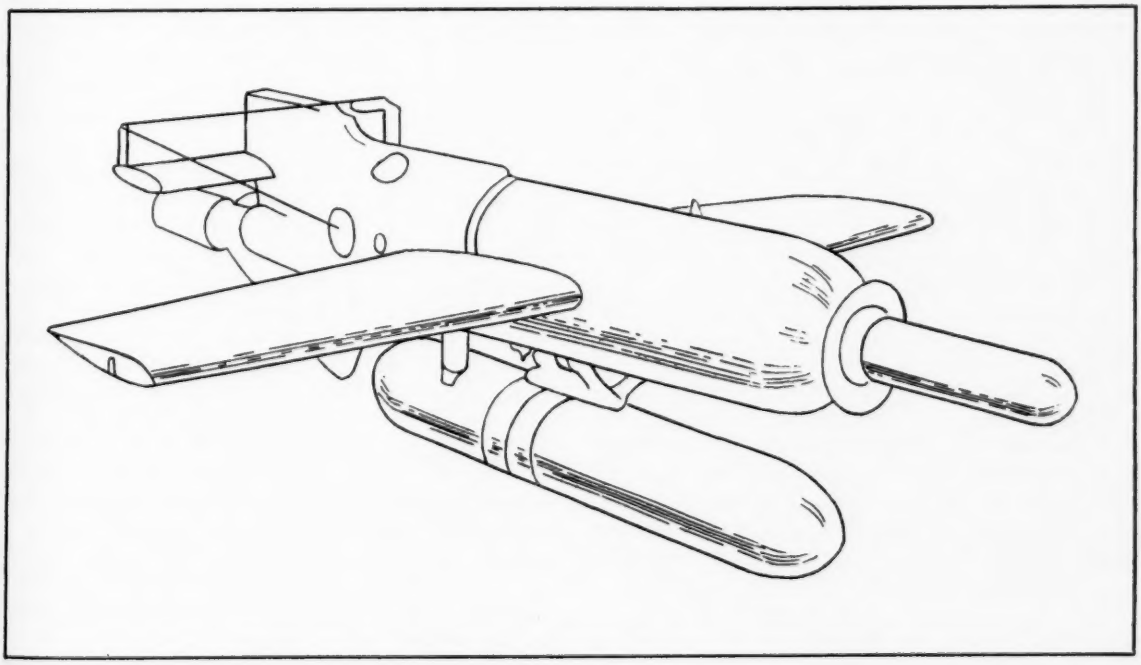
JET PROPULSION PLANE ENGINE

GERMAN V-2 ROCKET BOMB



The huge V-2, which is 46 feet long and weighs about 12 tons, resembles a big rocket in appearance and carries one ton of explosives. It can reach a maximum height of 60 miles and travels at a speed of approximately 2,400 miles an hour. Fuel for this weapon is cut off one minute after it is launched.


TAIL CONE FITTED WITH STRUTS, GUIDES AND CONTROL PLATES ARRANGED TO ALTER TO SOME EXTENT DIRECTION OF FALL OF BOMB
HOT AIR SOCKET
PROBABLY ELECTRICAL CONNECTION SOCKET
GYROS
PLATE REMOVED SHOWING CONTROL UNIT HOUSING
BOMB BODY
FINS ATTACHED TO BOMB BODY



In contrast with the four-finned, armor piercing glider bomb shown on top, the German glider bomb shown below has wing and tail assembly similar to a plane's and carries a jet propulsion unit beneath its fuselage. Gyro and radio control units are located in the fuselage. A stabilizer projects from the nose and a tracer unit from beneath the tail.

Aerial Warfare

(Continued from page 17)

tabs under the tail of the plane. The dive throws the fuel to the top of the gasoline tank, so that the engine is starved of gas and stops.

The V-1 can be launched from submarines, surface craft, airplanes, or from land bases. V-1s that accomplished the greatest damage in England were launched from hastily constructed platforms on the French coast. Not until these launching platforms were captured by ground troops invading the continent was the V-1 "blitz" of England successfully combatted.

No sooner had the British developed a technique of defense against the V-1 than the Germans launched a new Vergeltungswaffe weapon, the V-2, which possesses some of the characteristics of the V-1 but is proving more difficult to erect defenses against because of its great speed and stratospheric altitude.

The V-2 bomb has been classified by some ordnance men as a rocket projectile rather than a true "flying bomb." However, it possesses some characteristics of the V-1 and it was used in a similar strategical manner.

Where the V-1 in general appearance resembles a miniature airplane, the V-2 is more like a huge rocket. It is forty-six feet long and weighs about twelve tons. The warhead containing one ton of explosive is located in the nose of the bomb. Fuel for the rocket motor is carried in two large tanks amidships. The forward tank contains 7,500 pounds of alcohol, while the after tank holds 11,000 pounds of liquid oxygen. The fuel is fed through pipes to a turbine pump assembly and gas generator which is located just forward of the combustion chamber and the venturi tubes. The turbine which forces the alcohol and oxygen into the combustion chamber is driven by steam from a mixture of concentrated hydrogen peroxide and calcium permanganate.

Directional control of the V-2 is achieved by four small vanes set in the jets and four larger vanes affixed to the fins of the bomb. Movement of these vanes is determined by gyroscopic controls contained in the control compartment, located between the alcohol tank and the warhead. It was believed originally that radio equipment in the control compartment is designed to cut the fuel off at the proper instant. However, this theory has given way to the belief that this is accomplished by some form of automatic control.

The V-2 Bomb In Flight

When it is launched, the V-2 goes straight up until the gyroscopic control moves the vanes and changes the direction of flight to the horizontal. The fuel is cut off one minute after the launching. At the time the fuel is cut off, the rocket bomb is traveling at 3,000 miles an hour. The maximum height reached is about sixty miles. As the bomb nears the ground, the atmospheric resistance slows the bomb down and sets up enough friction to make the metal glow a dull red. An entire flight of about 200 miles requires only five minutes—a speed of 2,400 miles an hour!

At present, the two Vergeltungswaffe weapons are handicapped for strategical use by the fact that they cannot be controlled to a definite target. Their only advantages lie in those which might be gained from terrorizing a civilian population, diverting troops to defense against them, or by non-selective damage to communication centers and supply lines. None of these has succeeded in swaying the war outlook toward Germany's favor in the instance of the V-1 or V-2.

The Vergeltungswaffe weapons also are limited in range at present by the large amount of fuel needed to carry the bombs either under their own propulsion or by air or surface craft. If such a project as an attack from Europe on the eastern coast of the United States were attempted, experts believe that the Germans probably would need to discover a new type of concentrated fuel.

Two New Remote Control Bombs

In addition to these two Vergeltungswaffe bombs aimed principally at civilian populations and installations, the Germans have devised two weapons for use in combat which come within the "flying bomb" classification insofar as the fact that they are remote controlled is concerned. One of these weapons has propulsion of its own. The other depends entirely upon propulsion from the carrier plane.

One of these glider bombs is roughly similar in design to V-1, being both pilotless and jet-propelled. It is, however, smaller, being only a little over twelve feet long. Its propulsion unit is beneath the fuselage and inserted in the nose is a metal casing which contains a stabilizer for the craft. It carries an explosive charge weighing about 600 pounds. Its wing spread is slightly over ten feet as compared to the V-1's sixteen-foot spread. The bomb is launched from beneath the wings of a carrier plane and is radio-controlled by a bombardier in the carrier plane. It is necessary for the carrier plane to follow the flight of the glider bomb closely in order that the radio control may be operated accurately. (The bomb has a tracer unit which enables the bombardier to follow its flight.) This, of course, subjects the tow-plane to anti-aircraft fire.

Theoretically, this type of glider bomb is supposed to provide greater accuracy in hitting targets than does a non-controlled aerial bomb. The Germans intensively trained a group of bombardiers for this weapon and used it first at Salerno

in 1943 against allied shipping. They were only moderately successful with it, and very few reports have been received of its use since early in 1944.

Speed of this glider bomb is much slower than that of the V-1 and ship's gunners became quite adept at shooting it down. Its radio-control apparently is inclined to eccentricity. One observer reported seeing a German plane come in for an attack and release a glider bomb. The bomb dipped away from the carrier plane and then turned back and headed directly for the carrier plane itself. For several seconds, the German bombardier was in danger of being hit by his own weapon, but finally the bomb was diverted and it crashed into the sea.

A variation of this weapon is an armor-piercing glider bomb which is controlled by radio from the control plane but has no propulsion of its own. It is approximately eleven feet long. This bomb is simply released by the carrier plane. The bombardier in the carrier plane watches the bomb as it falls and can, depending upon altitude of his plane, control the bomb's trajectory by a few hundred yards.

This armor-piercing version of the glider bomb is subject to the same weaknesses as the jet-propelled glider bomb. In general, it can be used effectively only against armored vessels, as it is possible for it to pass straight through merchant vessels without exploding.

In answer to the German robot versions, Allied production is under way on similar weapons. Some experiments with remote-controlled bombers were conducted at the end of World War I, but end of that conflict plus the inaccuracy of remote-controlled bombers when tested brought the experiments to a halt. In 1944, the Army Air Forces developed a bomb patterned after the V-1. Experiments with this weapon have proved to ordnance men that such weaons as the V-1 robomb are products of precise engineering techniques, requiring skill, good material, and constant development. It is believed that the Allies soon will be able to launch their own robomb attacks as production of the bombs is well under way. The robombs are expensive to make, but their cost is counter-balanced by the fact that training of personnel to operate them is not as expensive as training bomber crews. And robombs can fly despite weather difficulties which keep piloted craft grounded.

The Army Air Forces have released the following information concerning their JB-2 copy of the V-1 at one stage of its development:

"The AAF robomb can reach a speed of 400 to 440 mph at an altitude of 6,000 feet and achieve a theoretical range of appromixately 150 miles. It is propelled by the same type of intermittent duct valve system as the V-1. The engine is started by a spark plug in the top of its combustion chamber, hooked up to a battery on the gound. Until the external air supply is shut off, it runs with a rich yellow flame. After this, it emits a blue flame and intensifies its roar as it develops a greater thrust force. Thirty seconds later, launching rockets are fired and the bomb soars into the air, together with its launching car. When a speed of 260 mph is reached the rocket-propelled launcher drops off and the missile continues on its course by jet propulsion.

"The autopilot maintains lateral stability by application of rudder control, since there are no ailerons. Constant pressure altitude is brought about by an aneroid element on the autopilot, which operates the elevator servomotor. The magnetic compass monitors the controls in azimuth to hold the bomb on its established course. When the bomb approaches its target, the air log propeller on the nose operates a mechanism which arms the warhead, starts the radio transmitter, sets the elevators in a dive position, and dumps the spoilers on the underside of the tail."

Whether this war will see "robot" or "flying" bombs develop into important strategical weapons, or whether such weapons are for future wars, both the Navy and War Departments are operating on the theory that what the enemy chooses to use as weapons will also have to be used by us, and if we can improve such weapons, the better it will be. To that end, continuous experimentation and testing is under way.

More Rapid Mortar Fire

A new record for rapid mortar fire is claimed by members of a Second Marine Division mortar platoon, topping the one established by a Fourth Marine Division platoon and described in the December, 1944, issue of the GAZETTE. Members of the Fourth Marine Division platoon fired more than 400 rounds in twenty minutes. As against this, according to a letter addressed to the GAZETTE by Sergeants Paul E. Pendergrass and William A. Martin, the Second Marine Division mortar platoon of four guns "fired sixty rounds per gun in two minutes and then kept up a slower rate of fire for approximately twenty minutes, which greatly exceeded 400 rounds. When we later ran out of ammunition Jap ammunition was given to us and we continued firing."

Tactical Air Photo Interpretation

The success of a campaign often depends in large measure upon the work done by tactical air photo interpreters working in the field under handicaps. ***By 1st Lt. Joseph W. Utz***

TACTICAL air photo interpretation is a military art developed and learned in the field under training and combat conditions. It is not taught, to any great degree, at the air photo interpretation schools in the United States, and it is not fully explained, from a tactical point of view, at the officers' training schools. As a result, many junior officers of the line, air corps, Navy, and other branches of the services have a very vague idea, and in many cases the wrong concept, of exactly how tactical air photo interpretation is applied and utilized by the assault divisions of the Marine Corps.

To begin with, one point should be made clear in the mind of the reader; it is a rather important one to the tactical interpreter, and good for his morale. Tactical interpreters do not work in air conditioned offices, they do not work under batteries of fluorescent lights, and, above all, they do not have the office equipment and the libraries of API Manuals one sees in the strategic air photo interpretation centers throughout the world. The tactical interpreters work under tarps, in caves, in foxholes, and take their chances with the assault troops. They are attached to, and are an integral part of, combat teams, and the forward echelon of Division Headquarters. They usually land with the ADC and CG executive staffs, which, to all intents and purposes, is very early in the game. In fact, they usually land on D-day.

Two Types of Interpretation

Perhaps a distinction should be made between strategic and tactical air photo interpretation. Most readers have probably heard of the famous PIU Unit in Britain, JICPOA in the Pacific, COIC in Australia and New Zealand, and other API Units at large Army, Navy and Marine Corps bases. These units interpret air photos with the so-called "big picture" as their primary mission, while a thorough tactical interpretation of a particular enemy held island or base is their secondary mission. The larger (strategical) API Units compile various API Studies of enemy bases, interpret air fields, enemy shipping, large coast defense installations, and generally do an excellent job of interpreting enemy held beaches. However, they do not specialize in what is called a tactical interpretation of beach defenses, and do not take part in the air photo interpretation which must repeat, and go on from a few days before D-day until the end of the campaign. This period, the most critical one, is when the tactical interpreter steps in and takes over. (Later on, an explanation of what goes on during combat, and how the tactical interpreter fits into the picture and into the situation as it exists on the beach and inland from the beach will be given.)

Allocation of Photo Interpreters

Tactical interpreters with Marine Divisions are both officers and enlisted men, and a certain number of each are designated as D-2 interpreters (Division Headquarters). They serve under the direction of D-2, and work directly for him. All special interpretations for the various staff sections and the regiments are cleared through D-2. API is a D-2 function, and the air photo section is a part of the Division Intelligence Section. However, other tactical interpreters are designated assistant R-2s, and serve with their respective infantry and artillery regiments. At first glance, it may appear that there are too many interpreters in a Marine Assault Division, but, on the contrary, we many times complain that we are understaffed—as do all staffs in the field.

The Division Headquarters Interpreters (D-2) form the largest API group in the Division. They make mosaics, semi-controlled and matched, experiment with new air photo methods, and continually train all API personnel by re-interpreting the air photos received from time to time by the Division from these strategic API units throughout the world. Between operations, the D-2 API section conducts tactical API Schools for replacements. Air photo reading and air photo appreciation courses for the line units of the Division are also held.

At all times, the tactical interpreters are prepared to write tactical studies of the terrain of any area D-2 designates, make roadnet studies, beach studies, and compile API Studies and reports on various enemy held bases. When time permits, situation maps of any enemy held island or base designated by D-2 are made. A considerable number of strategical and tactical interpretations are made for various members of the executive and special staff sections of the Division. Old maps are brought up to date, and the interpreters work with the relief mapping section of the engineers. A great deal of specialized interpretation is done from time to time, but security prevents discussion of it in any detail here. The tactical interpreter's primary mission should be to prepare himself for his main duty—that of

interpreting air photos in the field and under combat conditions.

Tactical interpreters serving with the regiments have an important responsibility. They must at all times know the air photo requirements of the line battalions and of the regimental staff. They must always be prepared to determine for the regimental commander whether interpretations, studies, mosaics, or copies of single air photos should be made for use by the line troops as map substitutes. They should be one step ahead of the R-3 at all times. They will need to make overlays showing new trails and new roads to the regiment's front; prepare terrain studies of the areas in which the regiment will operate; supply air photos to the combat and reconnaissance patrols; aid mortar and weapons company officers in computing ranges to defiladed enemy installations and weapons; aid the line company commanders in interpreting cultured and planimetric detail before attacks, etc. There is virtually no limit to the amount of aid the regimental tactical air photo interpreter can give his regiment.

Training and Planning

The preliminary phase of training for a tactical interpreter requires from seven to ten weeks as a rule. He is then ready for the daily instruction which is difficult to teach and learn. This takes considerable time, and must be made interesting. It is difficult because the interpreter must be taught to understand and know the techniques of defending different types of terrain with various weapons and groups of weapons. He must be schooled in the art of logically deducing what types of weapons will normally support certain defensive installations under different tactical conditions, and know where to look for these supporting weapons. He is acquainted with the technique of employing various types of supporting weapons and fire laid down in support of tactical wire, mine fields, and barricades. It is necessary that he be taught to know where to look for stores and be able to recognize situations which will cause the enemy to move his supplies. He should be thoroughly schooled in the recognition of various types of infantry strong points, and taught where to look for supporting artillery. Recognition of various weapons and installations is not enough. He must be taught to look for any and every type weapon, equipment and supplies employed by the enemy in various tactical situations, over every type of terrain. But, most important of all, he must be schooled and indoctrinated to report facts, and facts only. The D-2 is not interested in the interpreter's personal opinion—he is only interested in the facts.

The planning phase of a coming operation must be considered because it is one of the most important functions of a tactical air photo interpreter. In addition to working all day and half the night, he now begins to worry and think about operational and tactical photographic sorties the Division will require once the operation begins. As the reader knows, higher headquarters issues the order and designates the enemy held base or island which the Division will assault and capture. The Division is then provided with several sorties of air photos and all available information concerning the enemy, climate, hydrographic conditions, and so on, compiled from many sources. What takes place from this point until D-day cannot be discussed for reasons of security. About all that can be safely said is that the Division sets up a planning room, that only certain officers and enlisted men are allowed in this room, that whoever has the good fortune to work in this so-called "black chamber" works not less than twelve hours a day, every day, and that the tactical air photo interpreter virtually lives in this room.

Tactical Interpreters In Combat

Assume that it is now D-day. We are on the beach, and we can do very little except protect ourselves and perform any intelligence duties ordered by D-2. Since tactical interpreters are intelligence personnel, they are also trained for general combat intelligence duties. D-2, however, usually prefers to have the API section set up and to start making contacts with the carriers, the neary-by friendly airfields, the R-2s of the regiments, the NGF and air officers on the D-3 staff, and the divisional artillery staff. The contacts are now made, and the tactical air photo interpreters are now ready to settle down to the business of combat air photo interpretation.

By this time night falls, and the assistant D-2 (API) has to dream up tactical air photo sorties for tomorrow's flights, which will be carried out by the supporting photographic squadrons. For example, he suggests to the Colonel (D-2) that a photographic sortie should be taken of an area previously suspected of being an enemy tank

TEAMWORK

The Army, Navy, and Marine Corps are working together to hit the Japs in the northern Palaus, according to S/Sgt. David Stick, Marine Corps Combat Correspondent. Army P-38 pilots take aerial photos of Jap-held areas; Navy photo interpreters locate specific targets; and then Marine Corsair pilots hit the objectives.

bivouac. The location is known only to the Division. The message is written, the Colonel approves and signs it, and the request is signaled to the supporting air units. The next day, immediately after the photographs are delivered to the Division, the API section interprets the area for intelligence concerning the tank bivouac, and any other information which may be gleaned. This information is at once given to the D-2 for evaluation and action.

It must be understood that, when the request for the above tactical air photo sortie was sent to the supporting air units, it meant that the Division wanted that particular area photographed at the specific approximate scale set forth in the message—not any other area or any other scale. Aviation is never told how to fly, how high to fly, or what lens to use—that's their job, and they are experts at it—but they are told the approximate scale wanted, the extent of the area to be photographed, the amount of overlap required, and whether high or low obliques or verticals are required. Again, the Division has a tactical reason for the request submitted, and rightfully expects that the request be carried out to the letter. Of course, the confusion of combat directly affects the efficiency of every military mission, but, normally, the requested photographs are received in good time, and usually they are of good quality. Generally, the photographic sorties are flown immediately upon receipt of the message from the Division, and the photographs are delivered to D-2 as soon as practicable. The technique of message writing, the process of delivering the air photos, the reproduction of air photos in the field, etc., will not be discussed in this article, although they are important.

Everything Happens At Once

It is now about D-plus 1 day, and things are beginning to move swiftly. The NGF officer on the Division staff requests a damage interpretation of the enemy rear areas and a list of targets for NGF support fire missions. This is a comparatively simple job. The message is written by OIC-API, signed by D-2, requesting the necessary air photos at a specific scale necessary for this type of interpretations. Shortly thereafter, the photographs will be delivered to D-2. This is one of those times when it can be justly claimed that the API section is understaffed. The cruisers and battlewagons continue to ask for fire support missions; the NGF officer is worrying D-2; the R-2s are calling for air photos to be used as map substitutes, for use by the line troops; the air officer wants certain gridded air photos for his observers; D-2 (the boss) wants the location of enemy bivouacs and strong points to the enemy's rear; and the Artillery Staff wants obliques for close support fire missions. Happy days, it's raining! The Division CP is ordered forward; enemy mortar fire is falling nearby; it is discovered that D-3 has been calling for an hour; and the Chief of Staff would like to look at some mosaics! Then, all of a sudden, you thank your lucky stars that you have always trusted your enlisted interpreters, whom you taught all you know plus all your private little tricks. Things are beginning to move, and you are justly proud of your section!

Working Closely with D-2

As time goes by, the API section is required to make overlays showing the result of recent air photo interpretations for the D-2 situation map. This is done by compiling and evaluating all the new interpretations in comparison and/or in conjunction with the old interpretations made aboard ship and at the rear base. Every day the latest API overlay is discussed with the D-2, who wants more tactical sorties flown. The D-2 also points out the enemy held areas in which he is particularly interested. The messages are written, signed, sent out, and soon it is discovered that two complete sorties recently delivered by the air people are complete blanks—overexposed or underexposed, overdeveloped or underdeveloped. These tactical sorties must be ordered again and time is getting short.

It gets dark again and the regiments are calling for the air photos they requested—someone forgot to deliver them, or someone delivered them to the wrong regiment. You stand your watch as D-2 duty officer, and, although you are tired, you now have time to dream up more tactical sorties of areas you have not as yet completely interpreted.

In the morning, out goes another fresh batch of air photo requests to the carriers, where they are beginning to wonder if you know what you are doing. Very soon, an officer out there decides to start delivering sorties of areas he thinks are important — this is wonderful! Anyway, the sorties are always interpreted, since any air photos of enemy held terrain are of value and must be studied. There are no new targets for artillery; NGF wants another damage interpretation; the Tank Bn CO requests a tactical study of the terrain over which he is to operate tomorrow; D-1 and the Headquarters Commandant are asking for photos so they can select the site for a forward Division CP; the Division surgeon wants photos to choose a site for the Division hospital and new aid stations—these must be defiladed but not too obviously defiladed! A flight of dive-bombers still have some bombs left and urgently request targets before their gas runs out, and the air officer requests help in this. This is only the beginning.

All in all, everything is going splendidly. The regiments have jumped off again and are moving forward on schedule. A staff colonel comes rushing in, slaps you on the back and says: "By God, that bivouac you kids found contained about 400 Japs—we smashed the hell out of them with every piece of artillery on the island." (This actually happened on Saipan.) And off he goes with, "Now, you've got to do even better; things are tough up there." Yes, it certainly is; you have just heard what happened to Captain X. He was your buddy out in Shanghai in '37. So you give your interpreters a growl and try to dream up new sorties.

At about this point, the Division air observers are asking for areas to be searched and for targets to be verified. As usual, there is disagreement over some of the targets they have designated. The API officer insists that his interpreters do the air observing, and the air observers insist that they do the air photo interpreting. But soon this situation is all straightened out and things run smoothly again.

Briefing of Pilots

Experience has proved that, when an airfield is taken and we have planes based on it, the briefing of pilots who are to fly photographic sorties is of cardinal importance. This briefing is generally delegated to the Division tactical air photo interpreters, and rightly so, because they are acquainted with the terrain to be studied, the exact type of air photographs necessary to make an efficient study to fit the situation, and the particular kind of photographs which the situation dictates. During several successive campaigns it has been found that, while aviators are most willing to comply with our requests, many times they are not able to do so unless they have been briefed by a competent Division API officer prior to flying the sortie. In the light of experience gained during the Saipan-Tinian operation, this function of the tactical API officer cannot be too strongly stressed, because, time and time again, it has paid off tremendous dividends.

Working with Air Observers

Tactical air photo interpreters must be qualified to brief the Division air observers before every flight and interrogate them intelligently when they return. This system is of paramount importance in combat intelligence, and it always produces excellent results. The interpreters must be able to talk the strange "recce" language of the air observers and appreciate their efforts and exceptional ability. Air observers cannot fly haphazardly all over enemy held terrain, as it is too much of a strain on them. The tactical interpreter must, therefore, be ready at all times to designate a primary and secondary mission for air search, be fully acquainted with every known target on the island, and have the stubbornness to argue a point. He should also have the capacity to concede when he is proved wrong, in order that an accurate evaluation of the condition and disposition of any target can be reached. D-2 makes the final decision on the disposition of every target found. D-2 and D-3 are well acquainted with this API-air observer relationship, and they expect good cooperation and excellent results at all times.

The value of briefing and interrogating the air observer cannot be over emphasized. For example, at one time during a recent campaign, the enemy conducted counterbattery fire at night, using three field pieces fired from prepared positions, and obviously ranged in artillery emplacements. One of our interpreters, who is a bug on artillery, felt it his prime duty to locate these weapons, but every suspected emplacement was unoccupied and a considerable number of prepared switch and alternate positions were in evidence. The air observers were also stumped. This was a tough one. However, the corporal kept plugging away and finally found what he thought were tracks leading away from one emplacement and into a nearby Japanese farmhouse. That was all that was necessary; within a few minutes the air observers, after a hasty briefing, spotted the field piece hidden in the farm house, and also located the other two field pieces in farm houses close by.

Work Necessary After Combat

When the battle or campaign is over, the tactical interpreter's work really begins. Actually, combat in this particular business is very interesting. We experience the result of good staff work, are in on almost everything, and honestly feel we have done our part. However, now that the battle is over, a thorough ground study of every important enemy weapon, installation and strong point on the island must be made. Ground pictures must be taken of these installations, and a written description of the tactical employment, the damage, and the particular type of construction and materials used, must be prepared.

Finally, the prerequisite of a good tactical air photo interpreter is *feeling*. He must have the urge for it, he must have good eyesight, he must have a thorough knowledge of military organizations, and he should have a major interest in defensive tactics and the employment of weapons in the defense. This is the least mechanical of all staff work carried out by junior officers of Marine Assault Divisions. In the final analysis, in his heart the tactical air photo interpreter should be an infantryman, and should never relax in discharging his obligation and loyalty to the assault troops. **END**

How the Japanese Treat Prisoners

Marines in Jap prison camps must endure the worst ordeals of war.

By John Cotton

THE fourth year of captivity has begun for many of the 2,513 Marines originally held by the Japanese as prisoners of war. These men, mostly captured on Wake, Guam, at Bataan, Corregidor, and in Shanghai, are enduring one of the severest tests that civilized man has ever experienced. *

In addition to the Marines there were over 18,000 other United States prisoners and 9,000 civilian internees, as well as about 150,000 British and Dutch prisoners and internees, taken by the Japanese.

Most of the Marine prisoners of war are now held in several camps in Japan proper, at Shanghai, and in Manchuria, at Hoten, near Mukden. The movement of men to these camps from the Philippines commenced in October 1942, and continued until the fall of 1944, so that few of the men captured in the Philippines remained there at the end of 1944. Among the first to be moved from the Philippines were Lt. General Wainwright and other high ranking officers, who were taken to Formosa. It is quite possible that the prisoners held on Formosa will soon be moved to Japan.

In Japan proper, there are five groups of camps each consisting of from three to seventeen units. Hakodate is the most northerly group, the camps being situated in or near the city of that name on the Island of Hokkaido. The Tokyo camps are mostly situated in and near Tokyo and Yokohama, but one branch camp is at Niigata, a port on the north coast of Honshu about 150 miles north of Tokyo, and another is at Hiraoka, over 100 miles southwest of Tokyo.

The Osaka group, containing the largest number of prisoners, is mostly centered around Osaka and Kobe, but one of the camps is located 100 miles east in Nagoya and another as far west as Himeji. The main camp of the Zentsuji group is at the north end of the Island of Shikoku, across the Inland Sea from Osaka. There are also subcamps of Zentsuji on islands in the Inland Sea.

The Fukuoka group, although named after the northernmost prefecture of Kyushu Island, is actually located for the most part just across the Straits of Shimonoseki near the extreme western end of Honshu.

Camp Hoten, near Mukden in Manchuria, holds about 1,000 prisoners brought from the Philippines. The camp in China, originally at Woosung, is now at Kiangwan, a few miles north of Shanghai. The Marines captured at Wake and in China, as well as civilian contractors from Wake, were brought to this camp, but later some of them were transferred to camps in Japan proper.

Camps located in metropolitan areas such as Tokyo, Yokohama, Osaka, and Kobe are usually housed in warehouses with inadequate grounds for recreation. Many of these camps are in strategic areas. Most of the camps, however, situated in suburban or rural areas, have several acres of enclosed grounds and contain several one- or two-storied wooden barracks similar to those used by the Japanese army. Usually the barracks are overcrowded. The Kiangwan camp, near Shanghai, has seven newly built wooden barracks each about 250 yards long, providing space for about 250 prisoners. Toilets are at one end of the Kiangwan barracks, with washing troughs outside. There are separate bath houses.

Camp grounds are frequently enclosed with wooden fences electrically wired. However, the Hoten camp has an eight-foot brick wall, while Camp IV in Formosa has bamboo fences. Attempts to escape from the northern camps have been very few.

Limited heating is provided by small stoves during the coldest weather. Straw bedding is furnished for use in double-header bunks, and each man has several thin woolen blankets. Buildings are electrically lighted, but only low voltage bulbs are permitted.

Food provided by the Japanese is insufficient in quantity, of poor quality, and unpalatable for most prisoners. The principal items supplied are rice, vegetables, potatoes, and fish, with small amounts of meat, margarine, fruit, sugar, and tea. Milk, cheese, eggs, and canned foods are almost entirely absent from the rations.

A Delegate of the International Committee of the Red Cross who visited the Hakodate camps last September reported the following meals on the day of his visit, breakfast: bean soup, potatoes, cabbage, pumpkins; lunch: bread, pumpkins, jam, pickles; dinner: potatoes and pork soup. At the best, such meals are lacking in proteins and fats and are not appealing to the appetite.

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* *Since this article was written, our advance in the Pacific has caused the release of thousands of prisoners and internees held by the Japanese. Statements made by released prisoners confirm Mr. Cotton's description of prison camp conditions, particularly in regard to food and clothing.*

Cooking is done by professional cooks from among the prisoners. Kitchens and kitchen equipment appear to be primitive, thus limiting the variety of dishes which may be prepared. A few camps have bakeries, but many are without them and consequently there is no bread.

Canteens are available in most camps, but they are scantily supplied, usually with a few cigarettes, odds and ends of food, and some toilet articles. This condition reflects the general scarcity of almost all consumer goods in Japan.

The Marines in Kiangwan have fared better in some respects than most prisoners because the International Red Cross Delegate in Shanghai has been able to purchase from funds made available by the United States government some food and other items which he sends twice monthly to the camps. Supplies delivered in March 1944 included, among other things, 2,000 lbs. of smoked ham, 500 lbs. of bacon, 1,000 lbs. of beef legs, rolled oats, corn meal, lima beans, noodles, 2,000 eggs (for Easter), 600 pairs of socks, six new dentures, baking pans, laundry soap, etc. Although the American Red Cross has provided funds to the Delegate in Tokyo, he has been able to make only a few small purchases of medicine due to the lack of unrationed goods and restrictions imposed by the Japanese authorities.

A welcome but inadequate addition to the prisoners' diet in all areas has been the Red Cross food parcels, consisting mainly of meat, milk, butter, cheese, and cigarettes. On the average, all American prisoners held by Japan have received about fifty pounds of highly concentrated food annually by this means.

The Japanese have issued some clothing to prisoners, and some additional amounts have reached the camps from relief shipments. On the whole, however, it is evident that our prisoners are poorly clothed. The small size of Japanese clothing aggravates this situation, although some captured clothing has been utilized.

The extremely high death rate in 1942 reported by prisoners who have escaped from the Philippines appears to have been general throughout the Far East, but, at least in camps containing Americans, the death rate returned to normal about the end of 1942. The men captured in the Philippines particularly were undernourished, and worn out, and many were suffering from malaria and dysentery at the time of capture. For many months the Japanese did nothing to relieve the situation, and the terrible death rate was a natural consequence.

A slight increase in rations, combined with the arrival of the first Red Cross food parcels

IMPERIAL JAPANESE ARMY.

I am still in a P. O. W. Camp near Moulmein, Burma, There are 20,000 Prisoners, being Australian, Dutch, English, and American. There are several camps of 2/3000 prisoners who work at settled labour daily.

We are quartered in very plain huts. The climate is good. Our life is now easier with regard to food, medicine and clothes. The Japanese Commander sincerely endeavours to treat prisoners kindly.

Officers' salary is based on salary of Japanese Officers of the same rank and every prisoner who performs labour or duty is given daily wages from 25 cents (minimum) to 45 cents, according to rank and work.

Canteens are established where we can buy some extra foods and smokes. By courtesy of the Japanese Commander we conduct concerts in the camps, and a limited number go to a picture show about once per month.

LOVE TO ALL AM DOING FINE

George E. Kerr

This Jap-printed postcard, with space for a brief personal message, is typical of the communications which prisoners of war are allowed to send from camps.

and medical supplies, helped materially in checking the high rate of deaths. Prisoner hospitals were established, staffed largely by American and Allied military doctors and medical personnel. By our standards, few of the hospitals are well equipped, and in some instances it has been necessary to rely quite largely on medical supplies shipped by the American Red Cross.

In April 1944, an International Red Cross Delegate visited a hospital, attached to the Tokyo camps, which had been opened on August 1, 1943. At the time of his visit there were 175 patients of whom about half were Americans. The men were suffering from amoebic dysentery, intestinal diseases, beri-beri (twenty-two cases), polyneuritis, influenza, and other miscellaneous ailments. In the eight months since the opening of the hospital, there had been twenty-nine deaths.

Sanitation and a Few Diversions

Sanitation in the northern camps is fairly adequate, although that cannot be said of the Philippine camps. Latrines and toilets are usually located in separate buildings near the barracks. Cold showers may be taken daily. Hot water is available at irregular intervals, perhaps once or twice a week. Prisoners must use the large Japanese communal style baths.

The War Prisoners Aid of the YMCA has been able to provide a fair number of books, and games and sports equipment, for the camps in the north. At Zentsuji, one of the better camps, the library contains 2,000 volumes. Japanese newspapers printed in English are received there after some delay. Some classes have been organized at this camp, and, on Thursday nights, lectures and debates are allowed. Zentsuji camp also has four portable gramophones, and, once a week, stage shows, vaudeville, and singing are permitted.

Generally there is not much interest in strenuous games because of the poor diet and lack of time, as most of the men, including some officers, are working. Many of the camps have vegetable gardens, and some are raising livestock. Religious activities are permitted in most camps, but in many instances camps do not have chaplains.

All the men who are physically able are working, and officers are required to do camp maintenance work. At branch camp seventeen in the Fukuoka group, where there are 501 Americans, the work is coal mining. The men work eight hours a day with one rest day in ten. The men are paid from ten to twenty-five sen (two to five cents) per day. A few men work in the camp as cobblers, carpenters, and tailors. Men in other camps are required to do a variety of tasks.

Language Causes Misunderstandings

Officers, including many generals and colonels held in Formosa, are frequently required to do two or three hours of farm work daily. Officers receive pay in special camp money.

Authentic reports on the treatment accorded prisoners in the northern camps by the Japanese commandants and guards are not available. However, a recent cable, referring to a camp visit, from an International Red Cross Delegate, subject to Japanese censorship, is significant. He said: "Chief Commander arrived March 1944, (he) interviewed prisoners personally, inquired into personal matters (and) found much room for improvement, made 180 changes and/or improvements to date which mainly possible through close contact with prisoners. As many misunderstandings due language difficulties, difference customs and manners, also scolding given unnecessarily and prisoners disciplined without realizing violation of rules or Japanese etiquette (the commander) gave necessary instructions resulting in mutually better understanding. Taught Japanese guards commands in English (and) ordered prisoners and factory foremen to report expressions most necessary during work which now translating for distribution among prisoner factory foremen."

Relief Supplies Move Infrequently

Despite protracted negotiations conducted by our government and the American Red Cross it has never been possible to establish a regular route for the shipment of relief supplies to prisoners in the Far East. The reason is that Japan has refused to cooperate, and has never permitted neutral ships to enter Japanese waters. Two shipments of American and Canadian supplies went forward on the diplomatic exchange ship *Gripsholm* in 1942 and 1943, and were distributed to the camps.

Well over a year ago, supplies were shipped to Vladivostok, and finally, at the end of October of last year, the Japanese sent a vessel, the *Hakusan Maru,* to pick up over 2,000 tons of food, drugs, clothing and so on.

"Tell It to the Marines"

Very great delays in the delivery of mail have been alleviated somewhat, but regular communication still remains to be achieved. In the summer of 1943, the Japanese restricted incoming letters to twenty-five words, and, while this restriction at first seemed onerous, it appears to have helped to solve the Japanese censorship problems. Reports from camps in Japan now indicate that letters are received about four months after mailing.

Every effort is being made on this side to alleviate the suffering of prisoners, but the men themselves know the only real answer is liberation by our armed forces. One man in writing home, after describing the "kind and humane treatment accorded prisoners by the Japanese," ended his letter by saying "Be sure and tell it to Sweeney and tell it to the Marines."

Corps Artillery of the Army in Combat—1

Changing situations call for flexibility in organization.

By Col. E. M. Edmonson, USA

The following article, first of a series of four describing in detail the organization and operation of Corps Artillery in Combat, concerns United States Army procedure and is presented as an authoritative discussion for Marine artillery officers. Certain differences with Marine Corps practice, as well as certain points of similarity, will be noticed, but any keen Marine artillery student will find much here to interest him. In a subsequent issue of the GAZETTE, an article will be presented describing Corps Artillery as used in the Marine Corps.

THE personnel available to the corps artillery commander is set forth in the Tables of Organization. He must vary the organization and functions of his staff so as best to meet the demands of each particular situation. His organization should be flexible and his staff should be trained so that each section is conversant with the duties and method of operation of the other sections, and capable of taking over their duties in an emergency. Efficient operation over long periods must take into consideration the necessity for reliefs. Certain tactical situations dictate a certain staff organization, whereas other tactical situations will demand an entirely different organization. A type organization is shown on the following page, and contains the minimum personnel considered essential for sustained operations.

Operations cannot be divided into a planning phase and a combat phase except under very exceptional circumstances. Planning is usually concurrent with operations. To meet this situation, an artillery section is established and maintained at the corps command post, in order to keep the corps general staff advised as to the current artillery situation and to participate with them in planning operations. It will be noted from the diagram that information passes directly back and forth between artillery staff officers at the corps command post and at the artillery command post. Thus the artillery section at the corps command post is always thoroughly informed as to current artillery operations, and staff sections at the artillery command post are kept conversant with plans and policies being formulated by the corps commander. This intimate liaison is essential to smooth operations. When a general plan is formulated at the corps command post, an artillery plan is formulated by the artillery section and submitted to the corps artillery commander for approval. Orders implementing any approved plan are prepared and disseminated from the corps artillery command post.

It will be noted from the diagram that the S-3 and the S-2 are not in the fire direction center. The S-3 has many duties in addition to the current delivery of artillery fire, for example, the planning of harassing and interdiction fires, checking fire plans prepared by the divisions, coordination of air bombardment with artillery, coordination of naval gunfire with artillery, plans for displacement, coordination of fires laterally and in depth, and visits to subordinate units. The S-2 must centralize, evaluate, reduce to a systematic form and distribute artillery intelligence to all concerned in time to be of value to the recipient. He must organize and coordinate all artillery intelligence agencies. His duties will likewise require him to be frequently absent from the command post.

The Assistant S-3s, who are liaison officers with the division, are the eyes and ears of the corps artillery commander. They should not be in the channel of fire commands, but should be left free to assist in coordinating division artillery fires with corps artillery fires and to keep the corps artillery commander informed as to the methods of operation and needs of the division artillery. Their duties will, necessarily, require them to work back and forth between the divisions and the artillery command post.

Fire Direction Center

The fire direction center consists of two teams, each team being composed of an Assistant S-3 and an Assistant S-2. This section is concerned with the actual delivery of fire upon all appropriate targets. It will be noted from the diagram that certain types of information come directly to this fire direction center, whereas other types of information come to it through artillery officers at the corps command post. Except for fire on enemy batteries, very few artillery missions on targets of opportunity originate with the corps artillery fire direction center. Calls for fire of corps artillery units generally proceed from front to rear, and are acted upon by appropriate artillery units before they reach the corps artillery fire direction center. The S-3 and the S-2 do, however, prepare harassing and interdiction fires to be delivered by the fire direction center and coordinate such fires with similar fires delivered by the division artillery. A more detailed

discussion of artillery fires will be covered in another section.

Staff Displacement and Combat Orders

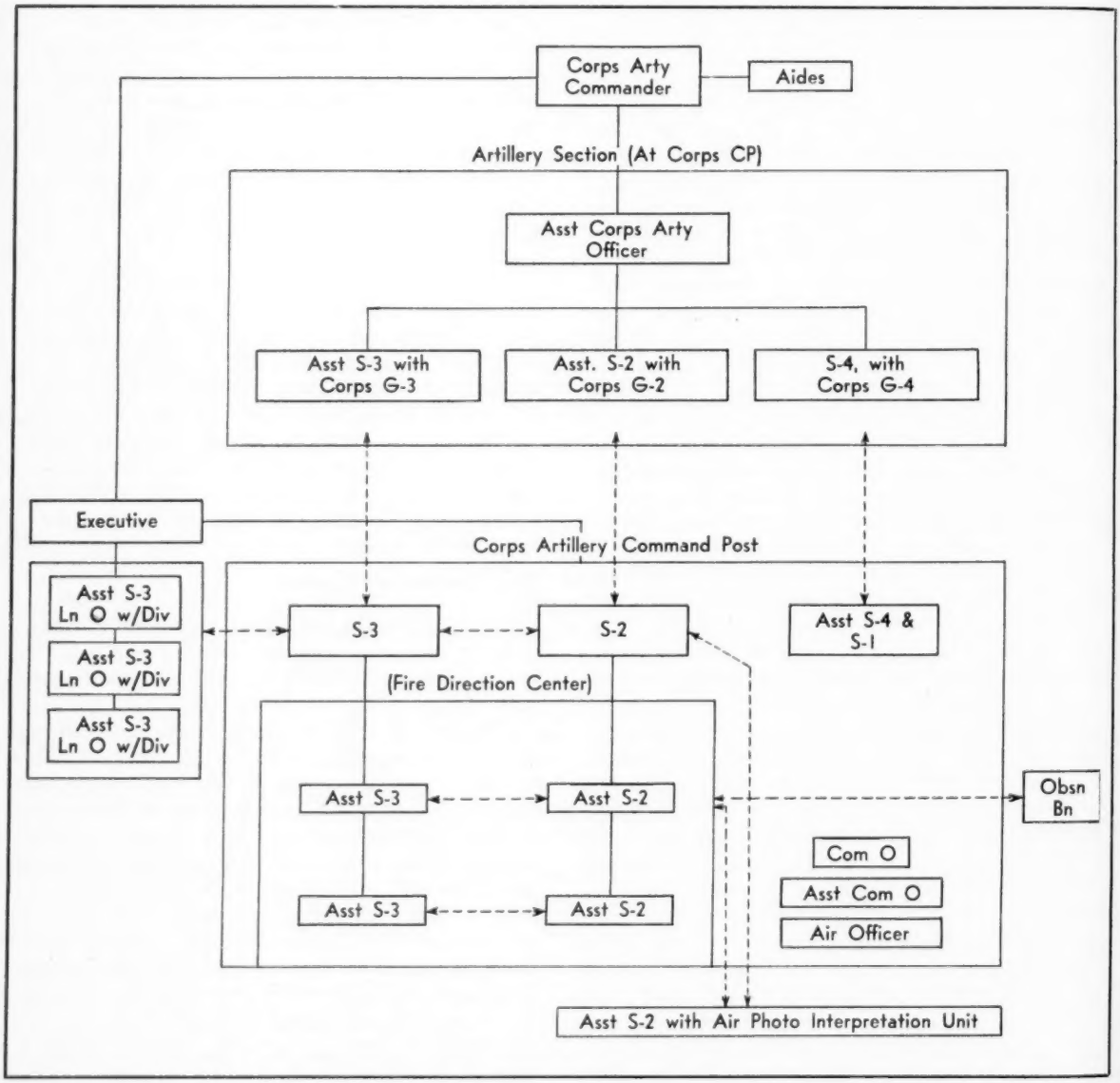
Both the artillery section at the corps command post and personnel of the corps artillery command post must displace in echelon.

One officer of the corps artillery section will be left at the old corps command post until the new corps command post is in operation. This officer should probably be the S-4.

Displacement of the corps artillery command post should be preceded by a reconnaissance party containing the necessary communication personnel to set up necessary communications. It should then send one fire direction team forward under command of the S-3 and maintain one fire direction team at the old location under the S-2 until the forward command post has become established and capable of taking over fire direction.

The air officer must be informed of the proposed displacement in order to make the necessary reconnaissance for a new air strip if necessary.

Orders are usually verbal and fragmentary. When a formal written Corps Field Order is issued, it is usually accompanied by a Field Artillery Annex. The Annex is issued well in advance of the proposed operation, and prescribes, in general, attachments to divisions; organization for combat of the corps artillery; position areas, siteing and general missions of the corps artillery and the coordination laterally and in depth of all artillery with the corps. Many other details are covered, but the Annex is *not* a fire plan. De-



Intimate liaison between the artillery staff officers at the corps command post and at the artillery command post is provided by the organization outlined in the diagram.

tailed fire plans must be worked out separately, within the framework of the Annex, and fire planning continues throughout the operation.

Orders to the corps artillery, implementing directives contained in the Annex, are issued verbally to corps artillery units.

Organization for Combat

Corps Artillery will, normally, be emplaced and sited by the Corps Artillery Commander to enable it to perform its primary mission of neutralization or destruction of the hostile artillery; to fire on targets which affect the corps as a whole; and to mass its fires on tactical localities which can be used by the enemy for attack or counterattack. This coordination, laterally and in depth, requires a careful study of the enemy road net, observation and artillery positions, with particular attention to avenues of approach into our position. We first determine what areas must be covered and how thickly; we then select positions which will give us this coverage, and, finally, artillery of appropriate range and caliber is emplaced and sited to perform the desired missions. Only then can we determine proper grouping.

The tactical unity of organic field artillery groups is respected insofar as practicable, but the formation of groups should be based upon the mission to be performed rather than upon type or caliber. It is preferable to have long range general support artillery grouped separately from that which has a supplemental mission of reinforcing the fires of a division or divisions. Reinforcing artillery displaces before general support artillery, and is more intimately tied in with division artillery.

After the position areas, siteing and grouping of the corps artillery have been determined, those groups containing medium artillery, and sometimes light artillery, are given the mission of general support and the supplementary mission of reinforcing the fires of the division or divisions whose zones of action or defensive sectors lie wholly, or in part, within the zones of fire of the battalions of the group. When a reinforcing battalion is able to fire in the zone of two divisions, it is given the mission of reinforcing the fires of both, with a priority indicated.

After consultation with division artillery commanders, group commanders may direct certain of their battalions to reinforce the fires of direct support artillery and others to reinforce division artillery.

Thus specific battalions are integrated into division fire plans. The reinforcing battalions are assigned definite concentrations to be fired on call. Data for these concentrations are computed, locations plotted on firing charts, etc.

The group headquarters exercises control in the preparation of prearranged fire plans, reconnaissance and displacement of its battalions, coordination of liaison and observation, ammunition supply and expenditure, etc. It does *not* step in and slow up any calls for fire, especially on targets of opportunity.

When the occasion requires, corps light and medium artillery may be given the sole mission of reinforcing a division; for example, on a wide front, when there is no occasion or opportunity to mass corps fires on profitable targets, but when the corps artillery commander desires to control the displacement of these battalions, due to probable developments.

Under exceptional circumstances, corps heavy and medium artillery may be attached to divisions; for example, during a pursuit, a landing operation, or when a division is employed on another type of mission which takes it beyond artillery supporting distance of the balance of the corps. In such cases, a flash and sound battery of an observation battalion should be attached to the division.

Artillery of reserve divisions is employed under its own commanders. It is emplaced in accordance with the probable employment of its division. It is sited by the corps artillery commander to add weight within its range limitations. It is usually held in general support and given a supplementary mission of reinforcing the fires of the division or divisions whose activities lie within its zones of fire. Because it must be kept readily available to its own division, it is not tied in with the artillery of front line divisions to the same extent that governs corps reinforcing artillery. That is to say, it will normally operate only with the division artillery headquarters of the division whose fires it reinforces, and cannot be counted upon to add weight to the fires of another division throughout the action.

Tanks, Tank Destroyers, and AA Artillery—A tank company, a tank destroyer company, or an antiaircraft battalion, when employed to reinforce artillery, usually reinforces a medium or heavy battalion. The reinforced unit:

Runs horizontal and vertical control close to, if not to, the reinforcing unit.

Registers the reinforcing unit on a point common to the registration of the reinforced unit, providing horizontal and vertical location of the point.

Gives the reinforcing unit prearranged fire missions, using the reinforcing unit to thicken the fires of the reinforced unit.

Lays wire to the reinforced unit.

Helps in any other needed manner.

Position Areas

Corps artillery will occupy positions ordered by the corps commander, and its position areas will normally overlap those of division artillery. The clearing of movements within a division boundary is the responsibility of the division commander within the time limits set forth in the

corps order. The detailed coordination of corps artillery positions with the division artillery positions is effected between the corps artillery commander and the division commander, or with the division artillery commander, as desired. Displacements must be cleared with traffic agencies set up by division and corps commanders.

Establishing Liaison

Command liaison is furnished by the Assistant S-3s with the divisions and by visits to the divisions, combat commands, and other forces. Command liaison should also be maintained with adjacent corps, and task forces of the corps. Communication is by the most practicable means, usually by the SCR-193 radio.

Liaison officers inform unit to which assigned, the location, organization for combat, and fire capabilities of the corps artillery. They report to the corps fire direction center on a prescribed time schedule, and at other times when changes are important, the following:

a. Location of forward elements.
b. Location of artillery CP.
c. Location of center battery of each battalion.
d. Direction of fire (azimuth of center of traverse) of each battalion.
e. Organization for combat.
f. Plans.
g. Displacements.
h. Enemy activity.

Reinforcing units establish command and fire direction liaison by sending a liaison officer with wire and radio communications to the reinforced unit. This officer is used for fire direction purposes by the reinforced unit commander.

When a corps artillery battalion reinforces the fires of two divisions, it must furnish the above liaison to both, calling upon the group headquarters for assistance if necessary.

Corps artillery battalions send agents to the corps artillery fire direction center, and, when necessary, divisions, combat commands, tank destroyer battalions, separate task forces send agents.

Fire direction liaison is established between adjacent corps artillery fire direction centers, as quite often enemy artillery in the sector of one corps can be handled most effectively by the artillery of the adjacent corps.

Command and fire direction liaison should be maintained between adjacent divisions of a corps and between flank divisions of adjoining corps. Such liaison, running laterally and in depth, will enable any commander to mass artillery fires beyond the capabilities of his own units on any threatened sector or in support of his offensive operations.

Registration and Survey

Reinforcing units should seek common registration with reinforced units. High burst adjustments with readings on two to six rounds can be made to obtain quickly a range K and a time correction. Battalions use own OPs, group flash base, or call directly on flash platoons of the field artillery observation battalion. Corps artillery units report to corps fire direction center when and where they register. Any restrictions on registration should be announced.

Each artillery echelon initiates survey without waiting for control or impulse from higher headquarters. The responsibility for providing common control for all artillery with the corps rests with the commander of the corps observation battalion under the direction of the corps artillery commander. In order to provide this control, he should establish the following:

a. "A survey center" for the collection and dissemination of survey information.
b. A place mark (initial point) in each division sector.
c. A place mark near the position area of each corps artillery battalion.
d. A declination station near the survey center.

He must work closely with the corps topographical company in order that survey control carried forward by the corps engineer will be in accordance with the tactical situation and future tactical plans of the corps. This coordination should be effected through the corps engineer. In many cases, the more exact and deliberate survey established by the corps engineer may not be brought forward in time to meet artillery requirements. Then it may be necessary to request the attachment of some of the topographical company to the observation battalion in order to establish survey control in the forward areas in time to be of any use to the artillery.

Survey Center—The location of the survey center should be near the headquarters of the observation battalion, and is announced in corps orders. The corps artillery survey officer should maintain an office at the survey center where surveys are planned, field data received and computed, and a file and plot kept of all available survey control. All survey needs should be made known to the survey center, and all survey data obtained therefrom. The survey center should:

a. Prepare and distribute trig lists for each sheet of map of the largest scale issued to the field artillery battalions.
b. Prepare and distribute by overlay approximate plots of trig points for each sheet of map.
c. Determine as early as practicable the trig points convenient to expected or actual battalion position areas, and (1) indicate their accuracy; (2) for those trig points which cannot be occupied place an offset point which can be; (3) mark those trig points which are difficult to locate; (4) provide a means of orientation for each trig point.

d. When trig points are inadequate in number for the use of field artillery units, provide additional and most accessible points.

e. Provide guides to identify established points on the ground to using units.

f. Precision survey plans of division artillery, group and battalion headquarters are cleared at the survey information center when practicable. Methods and results are reported to the survey information center.

g. Unit survey is not complete until unit installations are tied into trig points or to corps control and until identifiable control points in the target area are located.

In order that division place marks may be provided when required, it is essential that the division artillery commanders keep the survey information center informed of contemplated or probable displacements of the division artillery. The division artillery survey officer should contact the survey information center to decide the exact location of the division place mark. The responsibility for tying organic or attached division artillery to the division place mark rests with the division artillery.

Corps artillery battalions will keep the survey information center informed of contemplated or probable displacements of their battalions. Battalion survey officers will contact the survey information center to decide the exact location of battalion place marks.

The declination stations should be permanently marked "FOB Declination Station." The station itself should be a wooden hub, flush with the ground, marked by a witness stake bearing tags showing sketches of each orienting point and giving the grid azimuth to each point in both degrees and mils. The witness stake should carry a tag marked as follows: "FOB Survey." Station (name or number). Stations established by traverse are numbered serially, and those established by triangulation bear short names. Survey data is never given on the tag, but is obtained at the survey information center.

The survey information center telephone should be into the observation battalion switchboard, which is in turn into the corps artillery fire direction center switchboard.

Plan of Observation

A thoroughly coordinated plan of observation is highly essential, especially in a stabilized situation. Quite often observers in the zone of one division will see and adjust artillery fire on targets in the zone of another division. The corps artillery fire direction center must know the location of all static observation posts within the corps zone, and what areas can be seen from these observation posts, in order that observation for adjustment or surveillance may be set up regardless of where the target is or what artillery is designated to fire.

The plan of observation, like a fire plan, is built up from front to rear, and coordination of observation cannot be effected by the corps artillery commander until he knows what observation has been set up. When this is known, any necessary readjustment can be made through the normal chain of command. Priority in selecting OPs is direct support artillery, flash, division general support artillery, corps reinforcing battalions, and corps general support battalions.

The mission, zone of fire, and range capabilities of an artillery unit dictate its zone of observation. For example, observation for a 155-mm Gun Battalion would necessarily focus attention upon areas consistent with the range of the weapon, whereas, observation for a direct support 105-mm battalion would be directed principally into areas close to our front lines.

A corps battalion, given the mission of reinforcing the fires of division artillery, should have observation which will permit it to deliver close supporting fires in the zone of the division. Such observation can be coordinated most effectively by the division artillery commander concerned. The observation of corps battalions having a general support mission only should be coordinated by the corps artillery commander. In any event, observation must be coordinated finally from the corps point of view. Each artillery echelon should construct visibility dead space charts at the earliest practicable moment. Each corps group organizes its facilities to include at least one base for high burst registration.

Each artillery battalion with a mission of reinforcing a direct support battalion should furnish, initially, one forward observer who passes to the control of the direct support artillery commander. This forward observer reports targets to the fire direction center of the reinforced battalion, which designates the battalion which is to be adjusted by him. An artillery unit operating with a separate tank battalion sends a forward observer to the observer tank in headquarters company.

The observation agencies of attached units, such as tank destroyers, tanks, and antiaircraft, should be utilized and integrated into the plan of observation. A most important duty of all artillery echelons is exploitation and maneuver of observation.

Corps artillery units should maintain air patrol over infantry and tank units on the corps front, usually on a schedule of one plane per group. These airplanes broadcast aircraft warning, antitank warning and important intelligence on the corps air channel. They conduct fire only when adjustment by another airplane is impracticable.

The plan of observation and the location of all observing agencies should be kept up to date at the corps fire direction center.

Part two of "Corps Artillery of the Army in Combat" will appear next month.

Marine Rifle Squad in Combat—1

Fundamental principles for the most effective use of the thirteen-man rifle squad in the fire fight are presented in this article, first of a series on the highly important rifle squad.

The rifle squad consists of one sergeant, who serves as squad leader, and three fire teams of four men each. Each fire team is made up of a corporal, who serves as fire team leader, and three privates or privates first class. It is the duty of the squad leader to carry out orders issued him by the platoon commander. He is responsible for the training, conditioning, and conduct of his squad at all times. He is also responsible for the condition of the weapons and equipment of his squad and also for the fire control, fire discipline, and movement of the squad. He takes his position where he can best carry out his orders, and observe and control the squad. Only in critical situations does he participate in a fire fight. It is the duty of the fire team leader to carry out orders issued to him by the squad leader. He acts as rifleman, and is responsible for the employment of his fire team; that is, fire control and fire discipline. He is responsible for the condition of the weapons and equipment of his fire team. He acts as scout or grenadier as the situation dictates. The automatic rifleman in each team carries out the orders of the fire team leader. He carries the AR and employs it in combat. The assistant automatic rifleman in each team acts as rifleman, assists the AR man in selection of targets and fire distribution, and supplies ammunition to him. He takes over from the AR man if the latter is a casualty. The rifleman in each team acts as rifleman, scout, and grenadier.

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The Squad in the Fire Fight

WHEN the squad is given a mission to perform by the platoon commander, the squad leader must coordinate the efforts of his three fire teams, directing his squad through his fire team leaders.

Before he commits his squad in the attack, the squad leader must learn everything he can of the enemy opposing him. He must first make an estimate of the situation; that is, he must evaluate the terrain as it will affect the movement of his squad toward its objective; he must consider the strength and disposition of the enemy. He tries to determine the flanks of the enemy position and the location of enemy automatic weapons. These weapons will be well camouflaged and dug in, usually with definite sectors of fire. It will be possible to determine the general location and type of weapon from the sound of the firing. By close observation, the squad leader may be able to see muzzle blast or smoke and thus determine the exact positions of the weapons.

The squad leader bases his plan on the estimate, or anaylsis, he has made. He will obtain the best results when he makes a sound decision and *puts that decision into effect immediately*. The amount of time used in getting a squad into action is an extremely important factor. Success in the fire fight depends not only on a sound plan but also on the speed of execution.

The squad leader should work his fire teams forward as far as possible without firing. Fire should be withheld so long as the terrain permits a covered approach, or so long as the fire support of aviation, naval gun fire, artillery, tanks, and heavy infantry arms permits the squad to advance without excessive casualties. When the squad can no longer advance without the fire of its own weapons, the squad leader may direct one or more fire teams to fire on the enemy position.

In the fire fight, the squad leader moves from one position to another as necessary to control the efforts of his fire teams and to maneuver them forward until the objective is overrun. Fire team leaders will lead their teams to the squad objective by fire and movement in accordance with the squad leader's commands or signals.

When a squad is operating under hostile fire, the nature of the terrain, the width and depth of the formation, the weather, and the visibility often render control of the squad by one person very difficult. Under such conditions, fire team leaders assist the squad leader by maneuvering their fire teams to accomplish the squad mission. If the squad leader loses control, as he sometimes will, he must make every effort to regain it as soon as possible.

Fire control means the ability of the squad leader to open fire when he desires; to adjust and distribute the fire of his squad on the target; to shift the fire of all or part of the squad from one target to another; to regulate the rate of fire; and to cease firing at will.

Controlling the Fire of the Squad

The squad leader controls the fire of his squad through his fire team leaders. Normally he uses voice or hand signals. He announces the range, designates the target, and gives the command to commence firing. The fire team leaders direct the fire of their teams on that portion of the target assigned to them.

Fire control is essential. When a leader does not maintain control of the fire of his unit, the firing of individuals is aimless and wasted; the fire action of the unit is disorganized and ineffective. On the other hand, *if the leader has control of the fire of his unit, he can concentrate it on any target when he wants to.* He is able to realize the maximum fire power potential of his unit.

There are three elements of fire control: (a) range estimation, (b) target designation, and (c) fire orders. These elements can be learned from a book, but practical application in training is essential before they can be put to use in the field.

Range Estimation

All Marines must be trained to estimate ranges to enemy targets. There are two methods by which this may be accomplished; either by estimating the range by eye, or firing the rifle at the target. Estimating the range by eye is the basic method used to obtain the range to a target. The accuracy of the range obtained by using this method depends upon the amount of practice the individual has had. In training, the squad leader and his men may learn this method by estimating the range to selected objects and then comparing their estimates with the known distances. To do this, a piece of ground, fairly flat, should be marked off at intervals of 100 yards. The squad leader has his men observe this ground and fix in their minds the appearance of the unit measure of 100 yards at varying distances.

Ranges of less than 500 yards are measured by mentally applying the 100 yard unit. Ranges greater than 500 yards are estimated by selecting a point halfway to the target, mentally applying the 100 yard unit of measure to the halfway point, and then doubling the result.

The squad leader next chooses a piece of average terrain and from a central point picks out various terrain features. He measures the distance to them either by pacing, by use of a range finder or tape measure, or by map. Each member of the squad is then required to estimate the range from the central point to the selected terrain features. By comparing their estimates with the known ranges, the men can with practice reduce their errors to a minimum. Range estimation must be practiced constantly over various types of terrain and under varied weather conditions, for both terrain and weather have very definite effects upon range estimation by eye.

In some situations much of the ground between the observer and the target is hidden from view; this makes the application of the unit of measure impossible. In that event the range is estimated by the appearance of objects. When the appearance of objects is used as a basis for range estimation, the observer must make certain allowances.

It should be remembered that objects seem nearer when the object is in a bright light; when the color of the objects contrasts sharply with the color of the background; when the observer is looking over water, snow, or any uniform surface; when the observer is looking down from a height, or is looking over a depression, most of which is hidden; and in the clear atmosphere of high altitudes.

Conversely, objects seem more distant when there is poor light or fog; when only a small part of the object is visible; when the observer is looking from low ground toward higher ground; and when the observer is looking over a depression, most of which is visible.

The average of a number of estimates by different men is more accurate than a single estimate. When time permits, estimates may be averaged and quite an accurate range obtained.

A more precise range to the target may be obtained by using the second method—firing the rifle at the target. First, estimate the range by eye. Then set the range on the rear sight of the rifle and fire a tracer at the target. If the sight setting used does not produce a hit, estimate the error, adjust the sight in the proper direction to compensate for the error, and fire another shot at the target. This procedure is repeated until the target is hit. Read the range on the rear sight. If the ground is dry, tracers need not be used; the strike of the bullet on the ground is observed and adjustments made until a hit is scored. The disadvantages of this type of range estimation are that the element of surprise is lost and that the firer's position is disclosed.

Target Designation

The second element of fire control, target designation, is necessary in view of the fact that battlefield targets are indistinct and hard to find. The Jap is skillful at concealing himself and his firing position. He takes full advantage of natural concealment afforded by the terrain; he uses material commonly found in the surrounding area to camouflage himself and his position. The Jap is patient and does not give his position away by unnecessary movement.

It is the duty of the squad leader to locate and designate targets for the squad. The fire team leaders and other members of the squad must also

learn to locate and designate targets so they may quickly pick up targets pointed out by the leader, or designate them themselves if the necessity arises.

The squad leader should train himself and his squad to locate targets. Training exercises in which the men actually practice locating individuals, units, and crew-served weapons must be arranged. At first the targets should be placed at varying distances and in various positions on the ground to accustom the observers to their appearance under these conditions. The targets should then be camouflaged by degrees, in successive exercises, until they finally appear as they will in battle.

The direction of a target may be determined fairly accurately by sound. To develop this technique, captured enemy weapons should be concealed and fired. Methods of fire habitually employed by the enemy should be used.

Every Marine must be able to designate a target in the event that he is the first to discover it. An accurate designation of an enemy target contains the elements of range, direction, and description. Range, which tells the squad how far to look is given first so sights can be set immediately. Direction tells the squad where to look and may be given by oral description, by pointing with arm or rifle, by tracer, or by a combination of these.

Description tells the squad what it is expected to see as well as the nature of the target. It tells whether it is a point target such as a sniper; a linear target such as an irregular line of riflemen, the longer axis of which is parallel to the front; an oblique target such as a line of riflemen, the longer axis of which is at an angle to the front; a target in depth, such as a column of riflemen, the longer axis of which is perpendicular to the front.

In pointing out an indistinct target, a reference point should be used. A reference point is an object which will be easily recognized by the other members of the squad, or fire team, and one which cannot be confused with an object near by. A reference point on line with and beyond the target will make identification easier than when the reference point selected happens to be between the observer and the enemy position. The reference point selected should be as near the target as practicable. *When a reference point is used, the range announced always refers to the range to the target and not that to the reference point.*

The simplest form of target designation is the most effective. Though oral designation is often used, battlefield conditions may reduce the effectiveness of this method. The leader may find it more practicable to reduce his target designation to *"Range 150, watch my tracer"* and then fire a tracer at the target. He would then describe the target as "sniper" or "machinegun nest." To designate the flanks of a linear or oblique target, the leader would fire a tracer at each flank and describe the target as "enemy skirmish line" or "column of troops."

The foregoing example of target designation is the type used when the target is plainly visible or near an easily recognized object. When the target is indistinct or not near an easily recognized object, a reference point should be used. For example, let us assume that the target is 200 yards to the right front. A thatched hut selected as the reference point is in line with and at some distance beyond the target. The target designation in this case would be: "Range, 200. Right front. Reference, thatched hut. Target, sniper in ditch."

As still another example, let us consider a case in which the reference point is not in line with the target. Here, the leader must be able to estimate the lateral distance between the reference point and the target. He may readily do this by measuring the interval to the right or left between the reference point and the target in units called "fingers." To measure with fingers, hold the right hand about twenty inches in front of the face, palm toward the face. Raise the index finger and place the left edge of the finger on line with the reference point. If the right edge of the finger is on line with the target, the target is one finger width to the right of the reference point. The interval is announced as "right, one finger." If two fingers must be applied to the interval between reference point and target, the lateral distance is announced as "right, two fingers."

The target designation in this case would be: "Range, 100. Front. Reference, cave entrance, right two fingers. Target, covered gun emplacement." Fingers can also be used to indicate the width of the target, as in the following: "Range, 300. Right front. Reference, lone palm tree, left one finger. Target, enemy skirmish line, extending left, two fingers."

Three Elements Make Up Fire Orders

The instructions by which the fire of the squad is directed and controlled form the fire order. A fire order consists of three elements: (a) target designation, (b) fire distribution, and (c) method of execution.

Target designation, telling members of the squad *where* the target is and *what* it is, has been described. The second element, fire distribution, tells the members *who* is to fire. The squad leader must decide how he will engage the enemy position. If the entire squad is to fire on a linear target, each man fires his first shot at that part of the enemy position directly to his front. He then distributes the rest of his shots to the right and left of that point, covering that part of the target at which he can shoot without changing position.

This article is based on information in Manual NAVMC-3729, recently issued by Marine Corps Schools at Quantico, and is presented in this form as a GAZETTE feature.

Examples of Complete Fire Orders

The squad is fired on by a machinegun, and seeks cover. The sound of firing seems to come from the left front. The squad leader looks to his left front and observes closely. He notes a lone palm tree about 200 yards away, near the base of which he sees a series of puffs of smoke. He calls to the squad: "Range 200. Left Front. Machinegun at base of lone palm tree. Fire at will."

The squad is fired on by two automatic weapons, and seeks cover. The squad leader listens and observes. He locates the targets; one to the front about 100 yards distant, the other to the right front seventy-five yards distant. One weapon is "four fingers" to the left of the tree, and the other "four fingers" to the right of it. From the sound of the firing he believes the weapons to be automatic rifles. He calls to the squad: "First fire team: Range 100. Front. Reference, large banyan tree, left four fingers. Automatic rifle. Fire at will. Second and third fire teams: Range seventy-five. Front. Reference, large banyan tree, right four fingers. Automatic rifle. On my signal."

Range and visibility dictate how much of the target any one man can cover. If these factors permit, the entire squad target should be covered by each rifleman. Rifle fire should not be limited to that portion of the enemy position known to contain an enemy; on the contrary, all riflemen space their shots so that no portion of the target remains uncovered by fire. The ARs should open fire "single shot" so as not to give their location away. As soon as a remunerative target exposes itself, ARs should engage it with bursts of automatic fire. If there is an automatic or crew served weapon in that part of the enemy position which the squad is engaging, all automatic riflemen should concentrate their fire on it. If there is no automatic or crew served weapon, the AR men should distribute their fire over the entire target. After having fired three or four bursts, automatic riflemen should shift position slightly in order to prevent the enemy from locating them and bringing accurate fire to bear on them.

The above method of distribution is used when fighting over average terrain. To date, in the present war, Marines have fought most of their battles in countries covered with heavy woods or jungle growth. Under these conditions, fire is normally distributed over fire team, rather than squad, sectors.

If the squad leader discovers that the enemy position contains two or three automatic weapons protected by riflemen, he may designate a specific target to each fire team.

The third element of the fire order, method of execution, tells the men when and how to fire. It includes orders as to how many rounds or bursts are to be fired and the rate of fire. The squad leader may say, "commence firing," after which the fire team leaders will have their fire teams commence firing as soon as they have occupied good fire positions, located and sighted in on the enemy. If the squad leader wants his fire to be a complete surprise, he will give the order "on command" or "on signal." If either of these two orders are given, the fire team leaders will place their teams in position and have them sight in on the enemy but will not permit them to open fire until the squad leader gives the order or signal to commence firing. By this method, the squad leader will develop the maximum surprise effect of the fire power of his squad.

Maintaining Fire Discipline

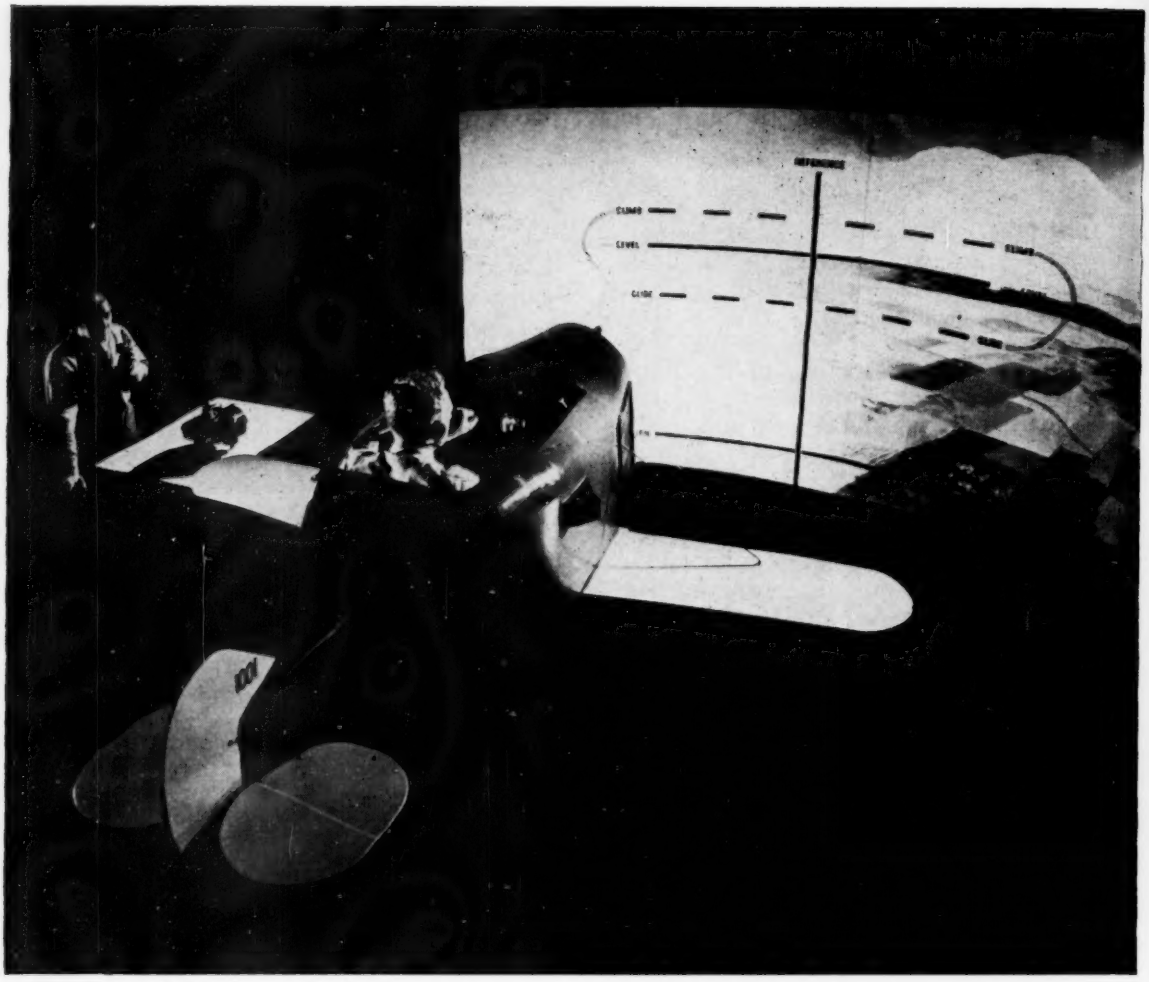
Fire discipline is strict obedience to fire orders and the observance of all instructions pertaining to the use of the individual's weapon in combat. Fire discipline requires that each individual set his sights correctly, line them up, aim, control his breath, and squeeze the trigger when he is shooting at a Jap just as he does on the rifle range when he is shooting for a score; it requires that he fire *only* when he has a Jap in his sights. It means also that when casualties occur the members of the squad continue the fire fight rather than cease firing to render assistance.

The fire team leaders assist the squad leaders in maintaining fire discipline. If the squad leader loses control of the squad due to reduced visibility, noise or confusion, the fire team leaders select targets, estimate ranges, and open and cease fire in accordance with the situation to accomplish the squad mission.

If the squad leader becomes a casualty or for any reason is separated from his squad during the fire fight, the senior fire team leader assumes command of the squad and carries out the squad mission. If a fire team leader becomes a casualty, the senior member of the fire team assumes the responsibilities of leader and continues the fire fight until relieved by the squad or platoon leader.

If a fire team becomes separated from the squad, it must make every effort to rejoin it. If this is not possible, it must join the nearest unit and continue the fight with that unit. An individual separated from his unit carries on the fire fight alone *only*

(Continued on page 63)

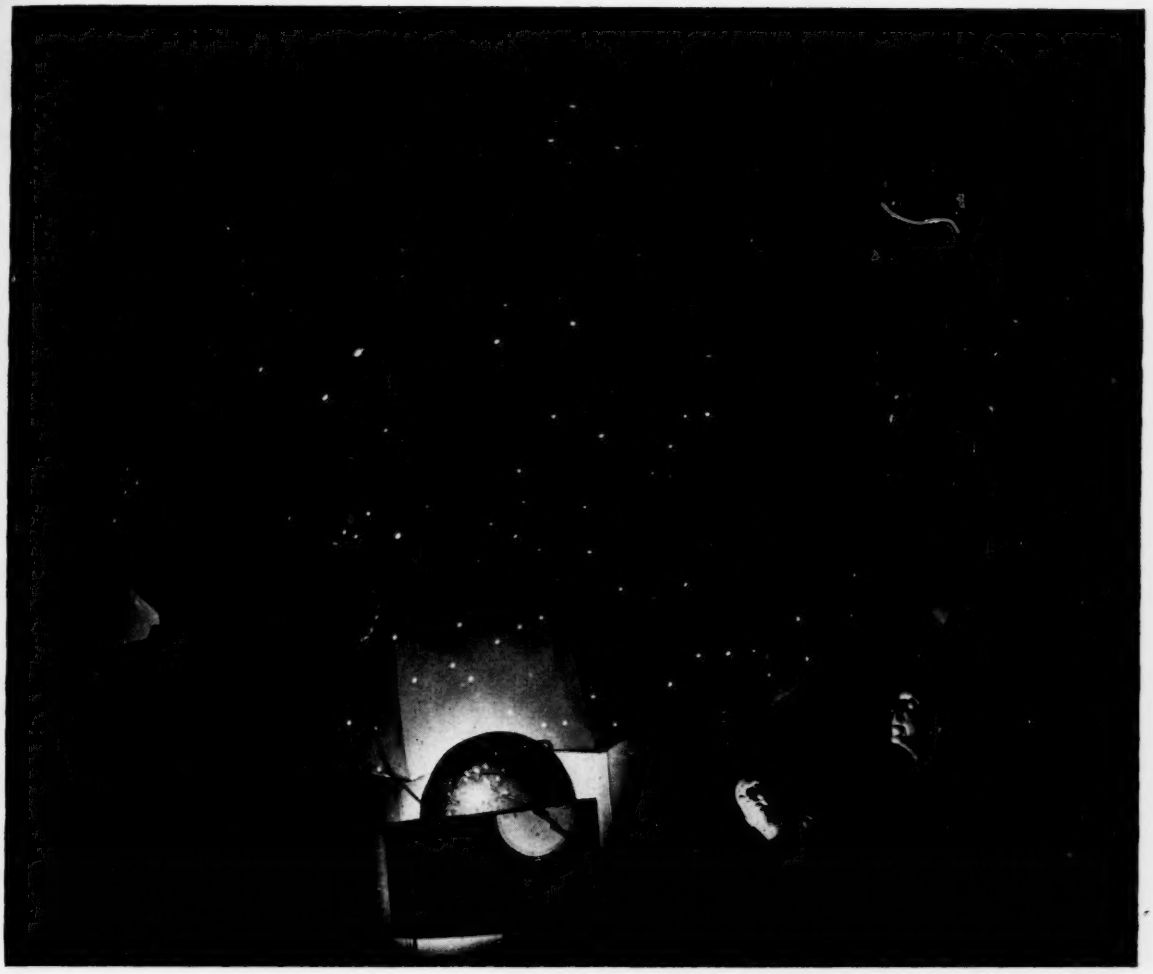


Special Devices Trai for Combat

Navy and Mar flye with training rices l

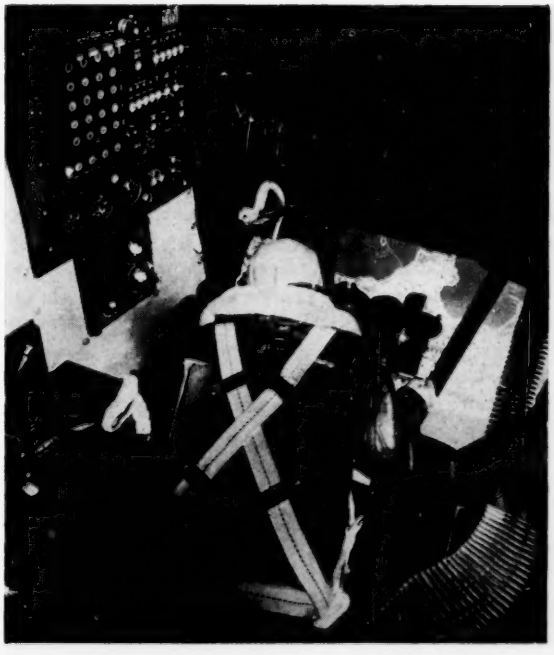
INGENIOUS devices which simulate conditions of flight and combat are now in use at air training centers, enabling Navy and Marine student flyers to shoot down enemy planes, bomb objectives, and engage in blind flying and many other activities—all without leaving the ground. The mechanisms are under the direction of Captain Luis de Florez, U. S. N., of the Navy Bureau of Aeronautics Special Devices Division.

In the Link Trainer, upper left, the student pilot masters coordination and controls his first awkwardness with panel instruments. Directions for the flight are given by the operator through an intercommunications system, and the



Train Marine Pilots

Mar flyers learn the principles of combat aviation
ng rices lacking nothing but the element of hazard.



crab at the instructor's desk records the student's path of flight. Astronomy is taught through the star recognition trainer, upper right, which enables the instructor to demonstrate the relationship of the heavenly bodies to one another.

In the illustration at the left, a student learns the use of controls on the panel of a plane "mock-up" with the aid of a record which describes the manipulation and purpose of each instrument. There are records for each different type of plane. At the right, an aircrewman learns precision bombing by a device which inculcates the use of the Norden bombsight under conditions simulating those encountered on a bombing run.

Educational Benefits for Veterans

What the government has provided for the education of discharged veterans, and what the veteran should do to secure the education he wants. ***By Emery R. Walker, Jr.***

★ ★ ★ ★ ★ ★

Almost every young veteran will be eligible for an education under the provisions of the G. I. Bill and Public Law 16, providing for the education of disabled veterans. Since officers may be called on to answer questions concerning educational benefits available, we present this article by Emery R. Walker, Jr., of Brown University

★ ★ ★ ★ ★ ★

THERE is quite a bit of discussion these days about the provisions the government has made for the education of veterans of this war. I say "has made," because the laws have been passed and the wheels have already begun to turn. As of November 1, 1944, 17,000 veterans were studying in schools of all kinds, with the government paying the bills. It's a golden opportunity.

There are two of these laws; one (Public Law 16) provides for education for disabled veterans, the other (Public Law 346) for those who are not disabled. Public Law 346 is the G.I. Bill. Here are its provisions:

WHO? Any veteran (man or woman) is eligible who has at least ninety days of active service, has not been dishonorably discharged, and who

1. Was twenty-five or under when he went into service, *OR*
2. Was over twenty-five, but whose education was interrupted by his service, *OR*
3. Wishes to take a refresher course not over a year in length. This latter provision applies to veterans regardless of age.

WHERE? A veteran who qualifies can go to any school approved by his state certifying agency —high school, prep school, college, professional school, trade school, apprentice training school, etc. The veteran should be warned, however, against the "fly by night" type of school whose credits might not be recognized by other schools or colleges, and which might be set up to take advantage of the large amounts of money which the government will spend to educate veterans.

HOW MUCH? The government will pay up to $500 each year (two-semester school year in high school or college) to cover tuition, fees, books, and supplies. This is paid directly to the school. In addition, the veteran is paid $50 a month ($75 if he has any dependents).

HOW LONG? This will be paid for one year plus the total time the man was in service since September 16, 1940. If a man has had, let's say, two years of service, these amounts will be paid for three years. However, time spent in the Navy College Training Program, the Army Specialized Training Program, or at West Point or the Naval Academy is not counted, and the total can't be more than four years.

There are one or two exceptions. In order to take a refresher or retraining course, a veteran who is otherwise qualified does not have to have been under twenty-five when he went into service. For instance, a musician, a draftsman, or a skilled technician of any kind might be out of practice after a year or two in service. He is eligible for refresher training, no matter what his age is. The $50 a month may be cut if there is any pay connected with the type of training chosen.

Some Financial Aspects

Now what does all this mean for the individual? Clearly, almost every young veteran will be eligible for aid in getting any kind of education he wants. He may choose his school, if the school will admit him. Most, but not all, of his expenses are paid. Notice that it's "up to $500" for tuition, fees, books, and supplies; in other words, the government pays what the man would normally have to pay *to the school or college.* Whether the school bills are $100 or $500 a year makes no difference in what he gets. He still has to eat, pay his room rent, and buy clothes and incidentals on his $50 a month. This is sufficient at many institutions; the most he will have to find in addition at any school will be an amount about equal to his room rent.

The other law—the one having to do with disabled veterans—is very much the same. The disability must have happened in service, and must be a vocational handicap, for this law is designed to help the disabled veteran to get into a line of work he can handle. Subject to the restriction that the institution must be approved by a state certifying agency, he can choose his school, and his fees, books, and supplies are paid for. His pension amounts to $92 a month if he has no dependents, $103.50 a month if he is married, plus $5.75 for each child and $11.50 for each dependent parent. The period during which these amounts are paid has nothing to do with how long the veteran was in service; he gets it for up to four years, depending on how long it takes him to

get ready for whatever job he would like to fill.

Disabled or not, then, the average young veteran these days has a real chance to get the kind of an education he wants. The first thing to do is to get in touch with either of two people:

1. A Veterans' Administration representative. Nearly every large city has a Veterans' Administration office, whose address is in the phone book.

2. An admission officer (or employment manager) at the school the veteran wants to go to.

These people are experienced advisers, who are counseling many veterans these days and either know the answers to their problems or know where those answers may be found. For example, the Veterans' Administration, in cooperation with colleges, is setting up a great many Guidance Centers, where a veteran may go through a complete testing program to find out what he is fitted to do. Others who have definite goals in mind may find out how to get there through either Veterans' Administration people or school officials. Every veteran ought to drop in and talk with somebody whose business it is to know what opportunities there are for him.

A large proportion of the veterans who will be eligible for educational benefits want to go to college. Some want the specific vocational training that strictly professional colleges give, but many know the value of liberal arts education.

There are all kinds of colleges and all kinds of veterans. That makes it impossible to make any statement which covers every case. However, this is the situation in general.

The first problem is getting into college. Most veterans want to get started as soon as possible after they have been discharged. The majority of the colleges have been offering three full semesters each year (no summer vacations) since the war began, admitting new students at the beginning of each semester. This means that a veteran, as a rule, does not have to wait any more than three or four months to enter.

Preparation for College Work

Many veterans are, of course, fully prepared for college. They have graduated from high school or prep school and were all set—perhaps even finally accepted—before they went into service. Some already have a few semesters of college behind them. A fair percentage, however, are not prepared for college for one reason or another. They may have gone into service before they finished high school; they may have taken a high school course that did not prepare them for the college they want (commercial or shop, when they want a liberal arts college); their grades may not have been up to standard. While all colleges will be liberal in the matter of entrance requirements when they are considering veterans for admission, it is not fair to any man to let him start work which he cannot do. As a matter of fact, Public Law 346 says that, if the veteran does not make the grade, his benefits end.

A few colleges are planning special refresher courses for these men. However, many of them really need more standard preparation, and should go back to high school or prep school for a semester or two. A man who is twenty or over may find this difficult; night schools or tutoring schools sometimes fill the bill, but often these are not available, and then high school is the answer.

A specific illustration may best show why this is often a good idea and how it works out:

A few months ago I talked to a Marine veteran, twenty years old, over two years in service, wounded at Guadalcanal. He had graduated in 1942 from a commercial course in the high school in his small New England town. Only about half of his courses had been the kind that prepare boys for a liberal arts college, that is, English, mathematics, history, foreign language, and science. I advised him to go either to a small private prep school for a couple of semesters, using his G. I. aid because of the expense, or go back to high school for a post-graduate course. Going back to high school, with all the youngsters, might be hard; a small prep school, where individual attention is more the rule, might be easier for an older student. However, going to high school would mean that he would not have to start his G. I. aid until he entered college. He could then get over three years rather than only two of college. He went back to high school, and has been making splendid progress. That was the solution in only one case, but it shows that there IS a solution, even to very difficult problems.

There is one more point on entrance into college. Advanced standing is available to many veterans for the experience they have had in service. Credit for service alone, regardless of what educational factors were involved, is rare; it is unfair to a man to put him ahead further than his academic training warrants, for he may find the advanced work too much for him. But Navy V-12, Army Specialized Training, Air Force Meteorology, and similar college programs obviously merit credit. So do Marine Corps Institute and Armed Forces Institute college level correspondence courses, languages learned in service, and those courses in any training school which are similar to regular college courses. Most veterans do not want standards lowered for them, but they do want, and deserve, credit for any work they have done.

The second problem is what it is like for a veteran after he has entered college.

Many men find it rather difficult, after as much as two or three years away from the books, to get back into the routine of study. They have one advantage, however, over those who go on to college directly from high school—they are more mature, they know better why they want an edu-

cation, and they approach their studies with a much more serious attitude. They work hard, and there is nothing more important than that in doing a successful job in college.

The three-semester-a-year college program is quite a grind for both students and faculty, and it will probably be dropped by most schools as soon as the war is over, if not sooner. This is the way the veterans want it, for most of them prefer a normal college life. Some want to get through quickly, however.

I have already said that most veterans want to have as normal a college experience as possible. Colleges will, therefore, probably change little, even when a large percentage of their undergraduates are veterans. Great efforts will be made to return to or improve pre-war conditions, not only in courses and academic functions, but also in athletics and other extra-curricular activities, which signify a college. In other words, the colleges are depending not only on the strength given to them by a past devoted to the service of youth, but also on their ability to adjust to new requirements and conditions, in order to give thousands—hundreds of thousands—of veterans the benefits of an education.

The Marine Corps Rehabilitation Program

By CAPTAIN O. L. FREEMAN

Once a Marine always a Marine. That is one of the basic tenets upon which the Marine Corps Rehabilitation Program works. Each Marine is interviewed before discharge. Help in solving his personal problems, information regarding veterans' benefits and how to apply for them, vocational tests, and guidance in selecting a vocation—these are only a few of the services available. Furthermore, the helping hand is not withdrawn after separation. Wherever the discharged Marine locates, he can be sure that rehabilitation personnel will be found nearby. In each Marine Reserve District is a rehabilitation officer and his staff of enlisted interviewers. Selective Service and Procurement Officers function in close liaison, extending the coverage to every state.

An example of the manner in which the Marine Rehabilitation Program works is offered by the case of a corporal discharged in San Diego and settling in Chicago. The man in question was so excited about his discharge that he failed to consider the benefits of which he was told at his interview in San Diego. But he had been given the name and address of the Marine Rehabilitation Officer in Chicago, and, when he began thinking of the possibility of attending college, he went to see this officer. The Chicago Rehabilitation Officer assisted the young veteran in receiving all benefits of the educational program and helped him through the details of matriculation at Northwestern.

In addition to these benefits, and closely related to veterans' education, is an accreditation program of the Educational Section, Special Services Branch, at Marine Headquarters in Washington for Marines on active duty, as well as for veterans. This service furnishes Marines with descriptions of specialized courses completed and jobs performed in the Corps which entitle them to high school or college credit or which would increase their qualifications for a skilled civilian position. A letter of instruction and application blanks are being sent to all Marine field officers concerning this service. These officers will be asked to assist their men in filling out applications for transfer of credits in advance of discharge to schools designated and in forwarding to civilian employers information concerning training and experience received in the Corps which could raise job qualifications. The Educational Section also will furnish to veterans a record of their service training for evaluation by educational institutions in terms of academic training.

Rehabilitation officers also wish Marines to be informed of the fact that there are many colleges which may be entered without the required high school credits. In such colleges, applicants getting a certain score on a General Educational Development Test are admitted without high school credit. The American Council on Education, Washington, D. C., can furnish information concerning approved colleges which make this provision.

This Month's Cover

Re-prints of this cover suitable for framing will be furnished upon receipt of 10c in cash or stamps to cover cost of handling and mailing.

Suppressing African Slave Trade

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FOR nearly two decades, from 1843 until the beginning of the American Civil War, practically every junior officer in the Marine Corps experienced a tour of exacting and unpleasant duty along the western coast of Africa in connection with American and British efforts to combat the slave trade.

Marine detachments were aboard the squadron of "at least eighty guns" which the United States Navy provided in accordance with the terms of the Webster-Ashburton treaty of 1842. This squadron, together with a large number of the ships of the British fleet, patrolled the African coast in an attempt to apprehend "slavers," whose business was flourishing despite rigid laws such as that of the United States making slave transportation by ship an act of piracy.

Incident on the African Coast

In the course of this duty, the squadron experienced incidents which, while not actually connected with tracking down the "slavers," were closely related to the seethingly hot and turbulent western coast of Africa. One of these incidents, which involved Captain (later Commodore) Matthew Galbraith Perry, a gigantic African chief, and some wary, quick-acting Marines, occurred in December, 1843.

Captain Perry was in command of the squadron at the time. He had just assumed command when he was informed of the recent seizure of two American trading vessels by certain uncivilized Negro tribesmen inhabiting the western coast. These same tribesmen had been guilty of a series of outrages against unprotected ships so unfortunate as to sail along the African coast. The incident which prompted Captain Perry to action had resulted in the murder of the captain, mate, and cook of one of the vessels and the torture of the captain of the other vessel.

Trouble At a Peace Parley

Determined to obtain redress for the offense, Captain Perry through a junior officer from the brig of war *Porpoise* made arrangements for an interview with the tribesmen suspected of the murders. These were the Berribees, wild inhabitants of the Liberian coast whose king or chief was a large black man, Ben Crack-O, possessed of a reputation both for ferocity and treachery.

Captain Perry landed on the Liberian coast for the parley accompanied by seventy-five Marines and sailors, who had been forewarned of the dangers surrounding the task. King Ben Crack-O had already received Captain Perry's demand for restoration of the vessels' cargoes and surrender of the persons guilty of the murders. He had invited Captain Perry to the parley but he also had placed his tribesmen inside a stockade which promised trouble for the Americans.

The Marines and sailors found King Ben Crack-O to be a formidable, savage figure of a man. Armed with a spear which bore notches representing twelve men he personally had slain, King Ben Crack-O met Captain Perry and conducted the party to the parleying ground.

The savage tribesman's anger was quick and treacherous. During the parley, he became enraged at Captain Perry's ability to diagnose the lies which he generously told. He attacked the Navy officer, grasping Captain Perry with one huge arm. He tried to drag the Captain to the

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place where the spears had been stacked, with the intention, no doubt, of using one to dispatch the Captain. The King found, however, that Perry was not to be disposed of so easily. No sooner had he been seized by the burly ruler than Perry threw him away from the direction of the stacked spears. An alert sergeant of Marines probably saved the life of the future opener of Japan to Western civilization by shooting the big black man. But it required two thrusts from other Marines' bayonets before the black man was subdued. Despite the wounds he had suffered, King Ben Crack-O lived for two days before the bullet wound and bayonet thrusts proved fatal.

The incident resulted in the abandonment of any attempts to reason with the tribesmen. Captain Perry's party burned the town in which the parley had been held and also burned three other Berribee villages. This action proved more successful than previous attempts to subdue the wild tribesmen. The Berribees made a treaty which insured safety for American ships on their part of the African coast.

The African squadron was less active under Perry's successors and only rarely were operations ashore undertaken. Introduction of steamships into the squadron made capture of slave ships easier and caused the trade to be practically stopped, particularly during the years just before the Civil War.

BALANCED PERSPECTIVE

The average officer, principally concerned with the immediate functions and problems of his command, often loses sight of the broader aspects of his responsibilities.

While it would be impossible to know all about everything on the many and widely scattered fronts, it is possible to know the important factors and overall objectives.

THE MARINE CORPS GAZETTE can help you keep a balanced perspective. For it covers Marine activities in all areas through the observations, knowledge and experience of your fellow Marines.

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Identifying and Using Japanese Equipment

Three types of Lewis gun being used by the Japs.

By W. H. B. Smith

This is the third article by W. H. B. Smith, Military Arms Consultant of the National Rifle Association, on the subject of enemy equipment.

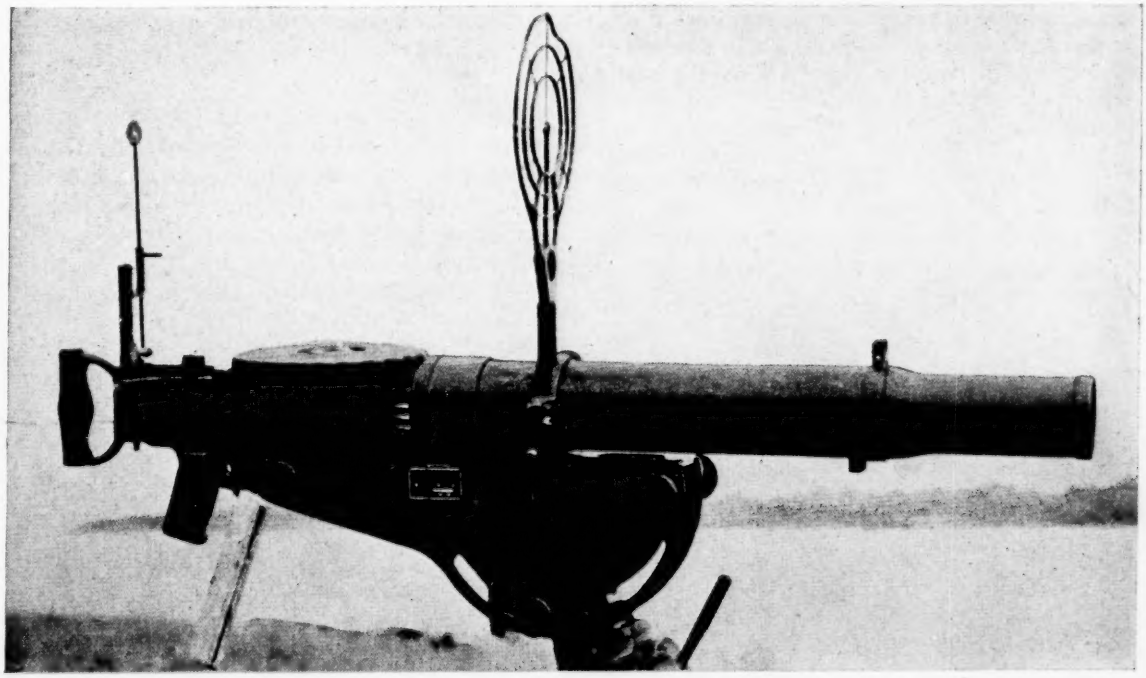
IT MAY come as something of a surprise to old timers among the Marines to learn that the Lewis Machine Gun they found so valuable in World War I is today an official Japanese service weapon. They will remember that the Lewis was a fine gun invented by an American Army officer who had to go to England to sell it. It was such an instant success in World War I that the British used it in huge numbers. It was adopted by our Marines, Navy, and Coast Guard, and eventually it was employed by the Army too.

In World War II it proved a life saver all over again. The British after Dunkirk officially credited it with bringing down more planes over the channel than any other weapon. Every Lewis they had or could get by lend-lease went into immediate service singly, in pairs, and in units of four. The saga of *those* Lewis guns adds a brilliant page to the history of England, but the Jap Lewis guns are another story!

Whenever you run across a Lewis Gun in use by the Japanese, study it carefully for Japanese markings. If the Japs made it themselves, it was probably turned out at Toyokawa Naval Arsenal. If the markings are British or American, the weapons were either captured from the British and turned against you; or were part of the Japanese armament program made possible because a handful of American and British subjects didn't care *how* they made their money, so long as it came easy. Some day you hope to return to civilian life. The more you remember about what the enemy threw at you, and how he got it in the first place, the more likely you will be as an ex-Marine to take measures against people who may want to help along World War III because they can make money out of it.

However, *your* most important job right now as concerns Lewis Guns is to know what they are when you see them; and to know what to do with them when they are encountered.

The weapon is so distinctive in appearance that it can never be confused with any other LMG. The flat rotating pan on top of the re-



Jap Lewis, fitted with AA sights and spade grip, on tripod.

ceiver, and the long "stovepipe" cooling jacket and flash hider over the barrel immediately identify it.

Lewis Guns as used by the Japs for ground guns fall into three classes. First, the Japanese *copy*. In practically all details except the mount, this weapon is a replica of the standard British Lewis Mark I; and it uses the standard British Mark VII caliber .303 cartridge or an exact copy of that cartridge manufactured in Japan. All specimens so far reported captured seem to be mounted on heavy, clumsy tripods and are employed as medium machine weapons. However, this gun may be found with the standard rifle-type buttstock or with a regular spade grip. It may be encountered with special AA ring sights.

Lewis *copies* are also used as standard equipment on Zero fighters as well as on other types of aircraft. Many of these guns are fitted with special feeding devices. As they will not normally be encountered under field conditions, there is no need for us to give further consideration to them.

Second, Lewis Mark I guns captured from the British. These are usually found as issued—with folding tripod mount. However, these also may be found mounted on special Japanese tripods for defense use. These will use either the regular British .303 or its Jap equivalent, of course.

Third, Lewis Guns purchased from Great Britain or from German arms cartels—notably Georg Frank of Hamburg—in the 1930s. These are rebuilt guns, some of which we sold to Great Britain during World War I and which they disposed of when they adopted the Bren Gun. Others were made from spare parts and reclaimed receivers which, after being junked in this country, found their way through the devious channels of international scrap sellers to the Reich where they were reconditioned and put back on the world market. These will usually be found chambered for the British .303 Mark VII cartridge, but will occasionally be encountered chambered for the U. S. .30-06. *When they shoot our cartridges, Lewis guns as encountered in Europe and Asia will normally have red paint splotched across the receiver and the magazine pan; and sometimes around the cooling jacket.*

Note that while the cocking handle (to use the British term) is usually on the *right* side of the receiver, on some .303 guns it may also be inserted on the *left* side. On the .30 caliber it is normally on the *left* side.

There are numerous varieties and modifications of the Lewis. Because of this, weights, measurements, and some construction details will differ in individual guns. Therefore the purpose of this practical-use article will be best served by describing the standard British and Jap-copy Lewis. *Ammunition:* This weapon uses the standard British Mark VII cartridge or its Japanese copy. *It will not handle the .303 (7.7-mm) rimless ammunition used by the Japs in their rifles and LMGs; nor will it handle the 7.7-mm semi-rim ammunition provided by the Japs for their Model 92 Medium Machine Gun.* This is an important detail to keep in mind.

The British-captured ammunition, of course, is head stamped "Mark VII." There will be no trouble identifying that. As the Japs do not head-stamp small arms ammunition, a description of their cartridge for the Lewis may be helpful. It is a brass case, rimmed cartridge stab-crimped.

The Japanese *Ball* ammunition uses a copper-jacketed slug. It bears no marking.

The *Armor Piercing* cartridge has a cupro-nickel jacket over a flat-base steel core. A white ring of shellac around the primer identifies the AP.

The *Tracer* cartridge has a copper jacket. A red ring of shellac around the primer identifies the tracer.

These cartridges are normally encountered packed in cardboard boxes holding fifty to the box, twenty such boxes being usually packed to the case.

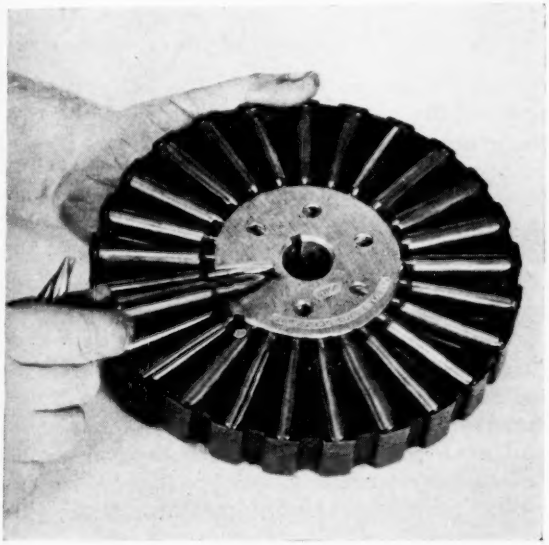
The Gun: The gun weighs about twenty-six pounds with bipod mount. Its overall length is about fifty and one-half inches. The barrel is about twenty-six and one-quarter inches long. A loaded magazine contains forty-seven cartridges and weighs just over four pounds. (A ninety-seven round magazine will sometimes be encountered.

British Lewis machinegun.

This is primarily an aircraft or naval magazine.) Rate of fire is 500 to 600 per minute.

HOW TO LOAD THE LEWIS: Starting with an empty magazine, if no filler is available, hold the magazine pan upside down in the left hand. Insert a finger in the hole in the center and press the magazine catch in firmly; this will permit the center to be rotated. Place the bullet point in the feed opening in the centerpiece, then turn the pan slowly so the cartridge case will take its proper place between the separators. Continue this until forty-seven cartridges are in place.

TO MOUNT MAGAZINE: Make sure that the cocking handle is fully forward. Then place



Loading drum magazine by hand.

the magazine on top of the post rising from the receiver, with the magazine catch *to the right.* Press down until the catch engages. Then pull or push the magazine until the locking pawl engages to prevent further rotation.

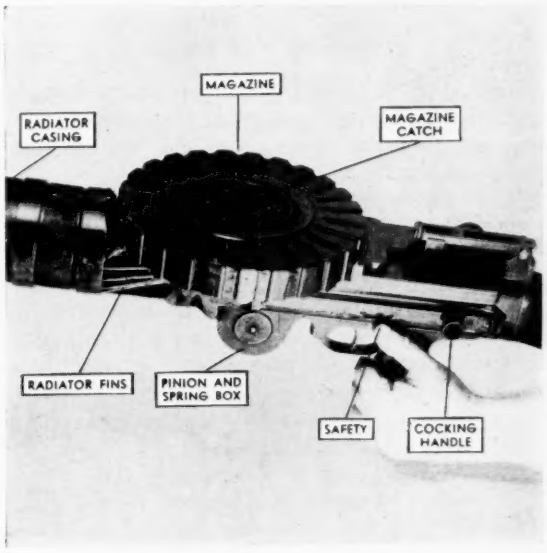
WARNING: Do not pull back the cocking handle until you are ready to fire; as the motion brings a live cartridge into the feedway out of the magazine. Removing the magazine after cocking the weapon still leaves a live cartridge in the gun.

TO COCK THE GUN AND SET SAFETY: The cocking handle protrudes through a slot in the side wall of the receiver. Pull it straight back until the attached piston is caught and held by the sear.

SAFETY: Catch plates on the sides of the receiver may be pushed up to permit a slot to engage the shank of the cocking handle. The action cannot move forward until the plate is pushed down.

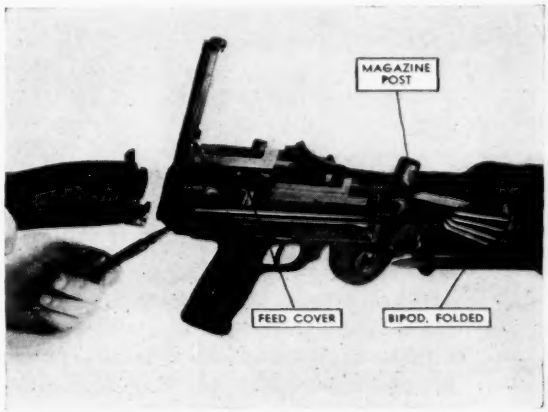
TO FIRE: Pressure on the trigger, when the safety is off, will lower the rear end of the sear out of engagement with the bent of the piston, thereby permitting the mainspring to pull the action forward and fire the cartridge. This is a full automatic weapon only. The gun will fire until the trigger is released or the magazine is empty.

TO UNLOAD: First, press in magazine catch and lift the magazine off its posts. Second, push the rear of the cartridge down, and as the bullet point rises, draw the cartridge ahead as far as you can. Third, holding *securely* to the cocking handle, press the trigger; then move the cocking handle forward and back until the cartridge falls out. (Note: With the .30 U. S. cartridge, this is even more ticklish, as the cartridge is longer than the British. With this cartridge proceed as follows: First, remove the magazine. Second, hold the

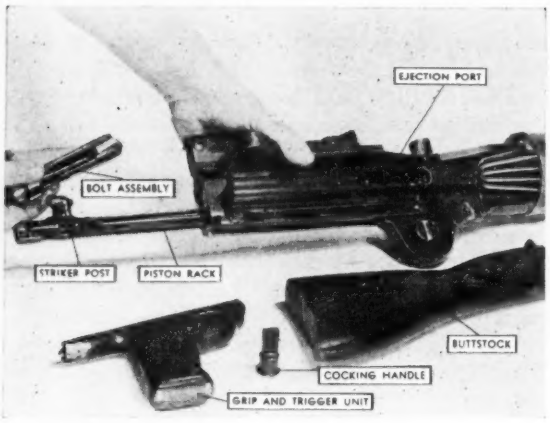


Setting safety on Lewis gun.

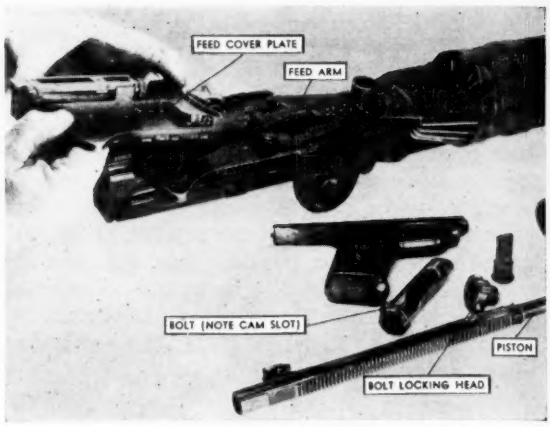
cocking handle securely and press the trigger; then ease the cocking handle ahead until the cartridge drops out of the feed arm. Third, pull the cocking handle back and set the safety. Fourth, turn the gun on its side and shake the cartridge out.



First step in dismounting.



Removing the bolt.



Feed cover removal.

DISMOUNTING: Push the latch below the rear of the receiver; and while maintaining pressure twist the buttstock up to the left and then pull it straight back out of the receiver.

Pull the trigger and draw the trigger guard unit back a few inches. The pinion casing in which the clock-type mainspring is housed will hinge down free of the piston rack. Then pull the cocking handle back to the end of the receiver where it can be pulled out. Draw out the trigger unit. Pull out piston and bolt and separate them.

Draw back the cover plate on top of the receiver and lift it off. (Be sure the feed arm is over to the right.) Then—(1) Feed arm and pawls may be removed if necessary. (2) Pinion casing may be unhooked from receiver and spring removed. (3) Receiver lock pin may be pushed with bullet to free receiver which can then be unscrewed from barrel assembly. (5) Unscrewing clamp ring screw at flash hider will permit hider to be removed. (6) Lift up gas regulator key and unscrew it until it comes out. (7) Slide off the bipod. (8) Pull off the radiator casing. (9) Unscrew and remove the gas cylinder. (10) Unscrew barrel mouthpiece and gas chamber—left hand thread. Radiator may now be removed.

This is a gas operated weapon. As the cocking handle goes to the rear, it draws back the piston. The bolt is mounted on a striker post which rises from the rear of the piston. A rack on the underside of the piston is engaged with the pinion in the box below, and, during rearward movement, the rack turns the pinion and winds up the clockwork spring, to a weight of about fifteen pounds.

As the piston starts back, the striker post on it strikes a cam slot in the bolt. This turns the bolt to rotate locking lugs out of their seats in the receiver. Then the bolt goes back in straight line with the striker and piston on which it is mounted.

Also during this rearward movement pressure is exerted on a feed arm, causing a feed pawl mounted thereon to rotate the feed drum. Stop and rebound pawls prevent too much movement.

When the trigger is pressed, the piston is free to go forward. The bolt drives the cartridge in the feedway ahead into the chamber, and two extractors in the bolt slip over the cartridge head.

The camming action of the striker post on the bolt twists the bolt to lock its lugs before the striker can drive the firing pin through the hole in the face of the bolt to fire the cartridge.

Gas passing through its hole in the barrel drives the piston back to continue functioning.

During rearward travel, the bolt hits the rear of a pivoted ejector. The front end swings around to hit the empty case and throw it out of the gun.

COOLING: This weapon has a unique cooling system, consisting of an aluminum radiator around the barrel, with a steel cover over it. A barrel mouthpiece is so shaped that as the bullet leaves the barrel the gases following it induce a draft which draws air down over the radiator fins from the rear. While this induction system actually does draw air, it is not an effective cooling system. In actual field test, the gun will jam from overheating just about as fast with as without the radiator.

Is Your Wife In Washington?

Marine officers stationed in posts other than Washington, or who are overseas or about to leave for overseas, and whose wives are living in Washington, are asked to notify Headquarters. It is requested that officers or wives supply Headquarters with their Washington address, telephone number, and probable duration of stay, so wives can be reached with notices of a social nature, invitations, etc. Address the Aide to the Commandant, Headquarters Marine Corps. Phone Republic 7400, Ext. 7501.

Aviation

Reports and Comments on the Military Uses of Aircraft *By Capt. C. J. Greene, Jr.*

FOR the first time since the Jap-happy days of Rabaul, when the marauding fighter sweeps cleared the skies of anything resembling substantial air opposition, Marine squadrons have again found happy hunting. The scope of the entire operation has precluded much mention in the press of the specific accomplishments of Marine Corps Aviation, but for two months elements of two Wings have been playing a substantial role in the reconquest of the Philippines.

Under command of Major General Ralph J. Mitchell, of the First Marine Air Wing, Corsair Hellcat squadrons of the First and Fourth Wings, during their first month in the Philippines, shot down fifty-one Nip planes, and in double duty as fighter-bombers sank seven destroyers, three transports and five cargo ships. During this month only six Marines were reported as killed or missing in action.

The planes knocked down and the ships sunk were in addition to the toll of damage piled up in bombing and strafing sweeps against troop concentrations, airfields, supply dumps, trains and bivouac areas from Leyte to Mindoro to Luzon.

At least five squadrons have been identified as representatives of Marine Aviation in the Philippines. They are the "Bat Eye," a night fighter unit equipped with Hellcat planes under command of Lt. Colonel Peter D. Lambracht; "Joe's Jokers," commanded by Major John H. King; the "Lily-Packin' Hellbirds," under Major Joseph H. McGlothlin, Jr., and the "Wake Avengers," under Major Stanislaus Witomski. The last four squadrons are VMF, flying the Chance-Vought Corsairs.

Arriving during the early phases of the Leyte assault, Major General Mitchell was the first Marine airman ashore in the Philippines campaign. The First Wing commander served as operations officer of the combined air activities on Leyte while plans were completed for the use of Marine squadrons in that area. Landings on Leyte were begun on October 20, but it was more than a month before Marine airmen were called in to add to the offensive and defensive firepower. The nature of the campaign made it mandatory that there be a considerable amount of U. S. shipping moving in and around large land masses which supported innumerable Jap airfields. The problem of protecting supply and troop convoys was of prime importance. Nip bombers and strafers were plentiful; ship and airbase AA crews were kept busy.

For a long while it has been a favorite Japanese tactic to attack shipping with air power in the half light of dawn and dusk if at all possible,

Corsairs Operating from Carriers

While this small handful of Marine squadrons was piling up an impressive record in the Philippines, other Marine Corsairs were making history still further to the West. Simultaneously with the progress of the Philippines campaign, it was announced by Advanced Headquarters, Pacific Ocean Areas, on February 1st that Corsairs have been and are continuing to be flown from carriers operating against the Japanese. They have been flown by Marines in all the recent carrier operations, including those in the Philippines coast, French Indo-China, South China, Formosa, and the Ryukyu Islands. For the first time in this war, Marine Corsair squadrons are thus operating from the first line carriers as a component of the fleet air striking force, thus fulfilling the secondary part of the mission of Marine Aviation. Activity of the Marine units aboard the big carriers was not to be confused with the special CVE program, under which an undisclosed number of CVEs were to be equipped entirely with Marine squadrons for the specific job of close support of ground troops in landing operations. That program continued apace as the land based and seaborne Marine fighters plunged forward in current operations in Japan's front yard.

New hunting grounds have opened up for this Marine-piloted Corsair, shown taking off from the Leyte airstrip shared by Marine fighters and transports and Army Air units.

and it was readily possible under the circumstances surrounding the Philippine invasion. It was decided that the night fighter, an aircraft which could destroy enemy planes at night as well as in daylight, was the answer to this problem. Not too far away were the "Bat Eyes," and a call went out for the Marine Hellcats.

This was a new role for Marine night fighters to fill, but the Hellcats were ready and adaptable. The "Bat Eyes" arrived in Leyte on December 4. In the early hours of December 5, on their first patrol, Second Lieutenant Rodney E. Montgomery drew first blood, shooting down a Jap plane which was attacking our shipping. This successful contact marked the beginning of a flurry of activity for the "Bat Eyes," which saw them score twenty sure kills and a probable within the first thirty days, far surpassing any previous record for a Marine night fighter squadron. The "Bat Eyes" ran their scheduled dawn and dusk convoy patrols in addition to the more normal mission of intercepting Nip aircraft which moved in to attack our installations during the night. For the first time in the war, a VMF(N) squadron had run into Japs in quantity and quickly proved capable of taking care of them.

A day of outstanding success for the "Bat Eyes" was December 12, when seven Hellcats piled into thirty-three Jap planes which were attempting to attack a troop convoy bound for Ormoc. Work of the night fighters was so effective that the attack was broken up without damage to a single ship—and the "Bat Eyes" shot down a total of eleven Nips within fifteen minutes.

Leading scorer of the "Bat Eyes" was, at last report, Technical Sergeant John W. Andre, with four planes shot out of the air and three destroyed on the ground. Andre flew into a formation of Nips heading homeward to an airfield on Luzon. He shot down two fighters which were coming in for a landing, then made six strafing passes at the strip, burning three planes on the ground and starting other fires and explosions. This was within three weeks of the time that Andre encountered his first enemy plane.

But as evidence that the work of the "Bat Eyes" was no one-man job, a total of thirteen pilots had scored Nip kills in the first month.

A wide variety of missions fell to the lot of the Marine squadrons in their first weeks in the Philippines. They made daylight and night interceptions of Jap raids. They flew combat air patrols for convoys. They covered the Ormoc and Mindoro landings. They made incessant bombing and strafing sweeps over Jap airfields and against Jap installations on almost every major island. And,

Navy First

In the August issue of the GAZETTE, the following statement was made: "On March 4, the Corsair performed its first mission as a dive bomber in an attack on Mille Island." It has been brought to our attention that the Navy in February employed the Corsair for bombing when Commander John Thomas Blackburn's "Skull and Crossbones Squadron" VF17, based on Bougainville, dropped 500-pound bombs from Corsairs equipped with homemade racks.

on several occasions, they searched out and attacked Jap convoys which were attempting to bring help to their beleaguered forces.

Using the Corsair as a fighter bomber, four Marine pilots scored four direct hits on a Jap destroyer in the Camotes Sea, west of Leyte, and had the satisfaction of seeing the can sink in a matter of seconds. One Corsair was so badly damaged by AA the pilot had to bail out back near his home base, but he was picked up uninjured.

On another occasion, three pilots from the "Lily-Packin' Hellbirds," returning from a bombing mission against an airstrip on Negros Island, spotted three Jap "Oscars" flying along below them. For these Marine pilots this, too, was the first time they had met an enemy in the air, but they dived to combat swiftly. When the affray was over, two Japs had been shot into the water and the third was speeding for home, damaged.

Because this was a new and "hot" operation, right in the midst of a score of well stocked Jap airfields, there was much at Leyte to remind veterans of the Solomons of their first tours of Pacific duty. There was first-class air opposition, with enough Japs airborne for as many as fifty to be shot down in a single battle. There were the usual battle freaks: More than a few Marine airmen will long remember the night a Jap sneaker came in over the airstrip on Leyte for a strafing run, headed for the area where the Corsairs and Hellcats were parked. AA fire hit the Nip plane just before it reached its objective. The aircraft hit the ground, bounced through the top of the Marines' operations tent, ripping it to pieces, then hit the earth once more and exploded. A dozen pilots were struck by the blast, but none was injured.

There were the innumerable Jap convoys, too, seeking persistently to run the blockade with supplies and men to aid the desperate defense. The Corsairs were used in both dive and masthead bombing attacks against the shipping.

And there was the mud, acres wide and seemingly acres deep. Typhoons and storms even more violent than those encountered in previous campaigns raged over the islands.

But there was a difference at Leyte, too, for this time the U. S. had moved with tremendous power. Fast carrier task forces were ranging the neighboring seas, striking incessantly at more distant airfields which could be used as staging bases. Instead of the single fighter squadron first available at Guadalcanal, there were scores of Army Warhawks, Thunderbolts and Lightnings on hand. In addition to their own missions, the Marine Squadrons were flying sweeps and patrols with large formations of Army fighters.

The Bat Eye squadron's pilots, first Marine airmen in the Philippines, meet for briefing.

Marine transport aircraft, as has become customary, were on hand right along with the combat echelons, and, in fact, an R5D Commando was the first Marine plane to land on Leyte. The Commando was the guide ship for the first flight of "Bat Eye" Hellcats, and carried essential ground personnel. This flight marked the extension of Marine transport activity from Australia north through the Solomons, and from Hawaii west through the Marshalls and Marianas into the Philippines. In no way a rival of either NATS or ATC, the Marine transport organizations of SCAT and TAG were set up and continue to function as combat transport for the support of Marine air and ground troops.

Double Play Rescue of Flyers

Second Lieutenant Arthur Wagner, a Corsair pilot of the 4th Marine air wing, had just dropped two 550-pound bombs on Ponape, island outpost of Truk, when his plane was hit by ack-ack and he was forced to make a water landing. His plane sank, and he piled into his one-man life raft. Soon after, a flying boat appeared and dropped a six-man raft. In this, Lt. Wagner kept drifting toward the Jap shore. Seeing this, the "Dumbo" pilot, Navy Lieutenant C. M. Rees, and his crew agreed to take a chance and go after Wagner.

The big ship landed safely, and Wagner was brought aboard. However, a take-off was out of the question. All Rees could do was taxi the "Dumbo" and hope it would hold together in the heavy seas. For fourteen hours he taxied the flying boat, until a destroyer escort appeared and transferred the flyers.—By S/Sergeant Earl Gordon Waters, *Marine Corps Combat Correspondent.*

What's New

Trends of Military Interest.
By S/Sgt. Ray Moulden

★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★

MORE SHIPS AND PLANES—28,000 air and 24,000 surface craft—will join the United states Fleet during 1945, bringing totals to 85,000 water craft and 65,000 airplanes. The new building program exceeds 4,000,000 tons for the year, and includes 206 combat ships, 223 patrol craft, 56 mine vessels, 694 auxiliaries, 657 district craft and 22,560 landing craft of various types. Last year, the Navy commissioned 29,777 ships. Of the total vessels on hand at the end of 1945, some 75,000 will be landing craft designed for Pacific operations. The $3,000,000,000 aircraft program for the new year covers 27,704 combat planes, and the ordnance program, to cost $3,308,100,000, is $200,000,000 higher than last year. Approximately $50,000,000,000 will be spent by the Navy this year, half for ships, planes, ordnance, shore facilities and supply items.

NEW GLASS LENS for plane pilots removes blinding glare and invisible light rays, its composition absorbing the scattered blue light which is characteristic of haze. The army has approved announcement of the development by the American Optical Company and its adoption by the Air Forces.

BOMB LOADS 50 per cent greater than before are now carried by the new P-38 Lightning fighter-bomber of Lockheed Aircraft Corporation, which has stepped up the capacity to 4,000 pounds, or better than the striking power of the original Flying Fortress. Army-approved announcements by the company show 6 per cent improved speed, to better 425 m.p.h.; additional fuel tanks, giving more than 3,000-mile round-trip range; terminal velocity of over 575 m.p.h., and service ceiling exceeding 40,000 feet. This eighteenth version of the plane has new dive flaps, eliminating air turbulence without lessening speed; hydraulic aileron boosters, which considerably facilitate controls, plus improved turbo supercharges, which increase the rate of climb.

LARGER ORDNANCE for British tanks has been disclosed by the British War Office. The vehicles now mount 95-mm (approximately four-inch) howitzers, firing high velocity shells using either explosive or smoke. First employed in tanks operating in France shortly after D-day, the new weapon replaces the obsolete three-inch gun and adds high trajectory employment at close ranges to its other capabilities.

NAVY'S FIREPOWER equals the steel production capacity for Germany, according to Bethlehem Steel Company. The firm bases the claim on 24,000 tons an hour as the firing rate of the

Set up quickly, the 35-lb. M-12 fires its projectile by remote control from safe distance.

One-man bazooka, or M-12 rocket launcher, is carried in this manner on operator's back.

Twenty-four hot showers can be provided by this wheeled bath unit, which draws water from a nearby stream, and, using a gasoline-driven motor, forces it through the boiler.

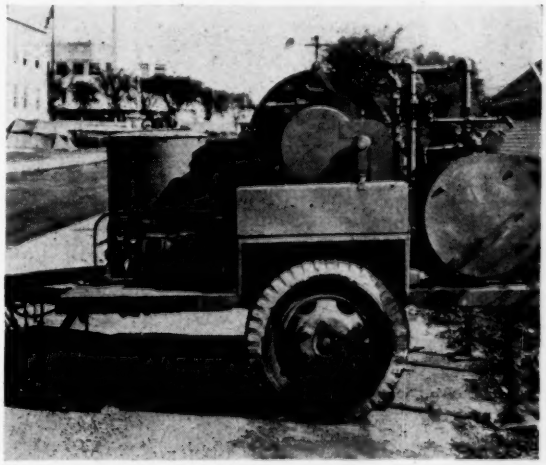
Navy's cruisers and battleships, stating that in 1,500 hours these warships would develop a firing rate of 36,000,000 tons, or about the estimated total annual steel production capacity of Germany as of the end of 1944.

TWIN-TELESCOPE RANGE FINDER, the M-10, for accurate control of 40-mm, anti-aircraft fire has been developed by Eastman Kodak Company. It uses two telescopes to obtain two target images, one red, one blue. True aim is obtained by manipulating the range device until the two images merge into a natural color target. The finder is mounted on a director which supplies firing data electrically to the battery of guns, which it also aims automatically. Previously, slant ranges for 40-mm AA batteries were estimated and corrections made manually from observation of tracers. Automatic operation now is supposed to eliminate possibility of error.

RADIAL AIR-COOLED AIRPLANE ENGINE developing 3,400 horsepower has been developed by Wright Aeronautical Co. in a specially built assembly for B-23 bomber tests. American Airlines disclosed the new power plant, which exceeds the new Allison 3,000 h.p. motor, hitherto most powerful unit, in describing completed tests by which it developed the cabin pressure and temperature control used in the B-29 Superfortress. No details of the new engine can be mentioned for security reasons.

HAIR FROM WIFE'S TRESSES used as sutures in repairing brain nerves saved the lives of four Army men in France recently. The four were admitted to the base hospital with brain nerves severed by shrapnel; absence of fine sutures and needles delayed their treatment. A former

Complete tailor unit above weighs 3,900 lbs. Below, a unit of Army two-unit laundry.



watch maker was found who could turn out a needle fine enough to stitch the nerves together, but no thread was found. Hair of all the nurses available was measured, but proved too coarse. Finally the soldier who made the needles recalled a lock of his wife's hair which he always carried with him. This was tried and found perfect. The nerves were sewed successfully and the men recovered.

HYPHOLIN, A NEW DRUG costing much less than penicillin, has been developed by the Watford Chemical Company, London, and, if continuing experiments prove successful, may make benefits of penicillin available on a much wider scale. Hypholin is less purified than penicillin, and experiments so far have shown it effective in meningitis, osteomyelitis, pneumonia, carbuncles, and air raid injuries.

MAINTENANCE OF THE MARIANAS Islands by the United States as a permanent naval and air base comparable to Pearl Harbor has been urged publicly by Artemus L. Gates, Assistant Secretary of the Navy, following an inspection tour of the Pacific theaters. Mr. Gates stated he believed the Marianas stand for "another Pearl Harbor 3,500 miles west," and that bases in the far Pacific must be established and maintained on a full-scale basis in peacetime. Mr. Gates also forecast the early use by the Japanese of intercepter planes based on German rocket principles.

ROCKET DEMAND FOR 1945 use is ten times that for 1944, Congress has been told by Undersecretary of War Robert Patterson. His published letter to the House Military Affairs Committee listed the following production requirements for the current year:

Navy rocket program — ten times the 1944 output, which was 4 per cent below requirements; January output substantially below requirements. Navy high-capacity ammunition—85 per cent increase over 1944; was 4 per cent under requirements during last half of 1944, 9 per cent short for year. Critical aircraft—sharp increase over 1944, which was 23 per cent below schedule in last half of year. Heavy artillery ammunition—80 per cent over first half of 1944 through June, 1945. Production was 6.2 per cent below feasible schedule, and 35 per cent short of actual requirements during the past six months.

Anoxia can be fought at altitudes as high as 50,000 feet by use of this AAF mask.

Army combat engineers shown in a peculiar enemy vehicle taken at Baesweiler, Germany.

NAVY IS PLANNING plane tests at 750 miles an hour in its new wind tunnels, world's first supersonic tunnel designed for testing aircraft models. The installation is costing $4,500,000, and will be used by the National Advisory Committee for Aeronautics at Ames Laboratory, Moffet, Calif. The Ames tunnel will be used to test the new fighter designs, including jet propelled engines expected to develop level flying speeds well above that of sound. Dive speeds already approach this point in some gasoline-fueled planes.

ALASKA IS THE SITE of latest tests of the Army's new jet propelled planes, the Arctic area being chosen as means of subjecting the ship to the most difficult flight conditions. The jet plane was first tested at Muroc, Calif., under hot conditions of the desert. Air Force, the Army aviation magazine, disclosed the cold weather tests. At the same time, a Moscow dispatch states that

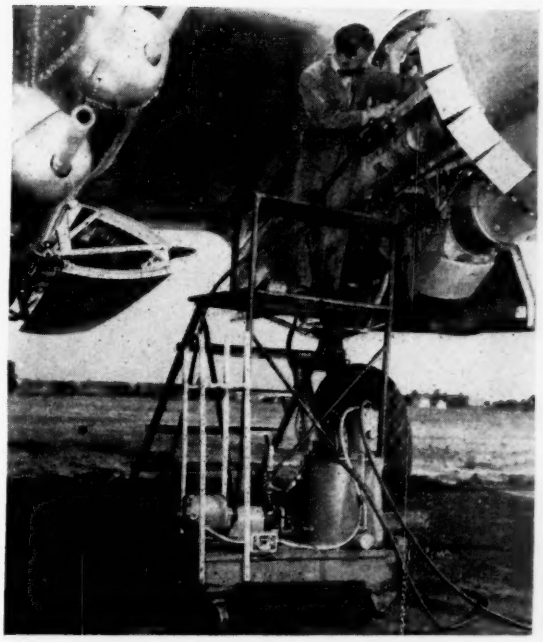
Russian aircraft engineers have recently spent a six months tour in the U. S. studying jet planes. Air Force suggests that the Alaskan jet tests concern fuel viscosity and other fuel problems, since kerosene differs from gasoline in its reactions at low temperatures. A year ago, the Army announced its jet plane as a fighter, with heavy armor and ordnance, but Air Force states that the P-59A is a training plane, and that the engines make a heavy drain on fuel supply at low altitudes, with considerable reduction in consumption as flight level is increased. At very high levels, the plane uses about as much fuel as conventional crafts employ. Each of the twin engines in the P-59A uses but two sparkplugs, located in the No. 4 and No. 8 combustion chambers.

AT LEAST SIX NEW NAVY PLANES, including one jet-propelled craft, are ready to meet the expected appearance in Pacific air warfare of Japanese jet planes, it has been publicly stated by Rear Admiral Dewitt C. Ramsey, chief of the Bureau of Aeronautics.

M-18 TANK DESTROYER, now fully proven as an effective front line weapon, is now disclosed as having a mechanical system which permits complete installation of a new engine in less than two hours. Furthermore, Army Ordnance reports the high-speed destroyer's ten bogey wheels operate independently, so that one broken wheel will not incapacitate the vehicle.

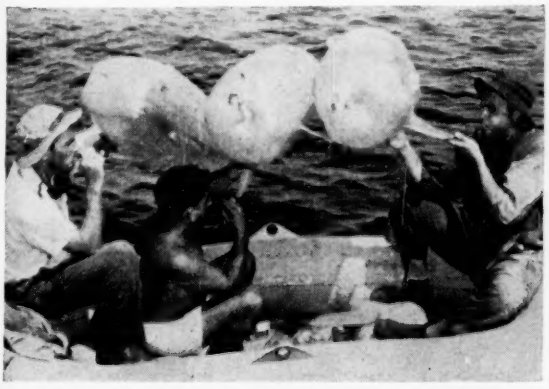
FIRST JAPANESE SHIP MADE OF PLYWOOD has delivered its initial cargo to Tokyo harbor, according to Domei (official Japanese News Agency). Domei termed the vessel "the bright hope of our war maritime transportation."

NAZI V-2 BOMB appears to have been patterned after an original American design developed by Dr. Robert H. Goddard, outstanding rocket expert in the years following 1910 and preceding Pearl Harbor. The National Geographic Society states that a captured V-2 rocket bomb has disclosed most of Dr. Goddard's innovations in integral parts and their arrangements inside the case are the same as originated by him. The United States had no enemy whose territory was within range of short or medium range rocket bombs in 1941, hence Dr. Goddard at that time was asked by the Army and Navy to suspend work on this type of projectile and devote his time to jet propulsion for aircraft, the National Geographic reports.

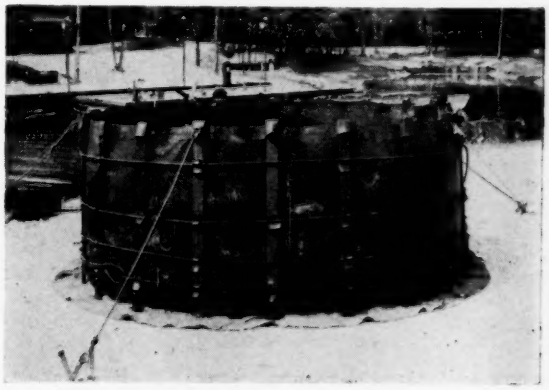


Pre-heated oil is furnished a Marauder engine by a compact, portable lubricator.

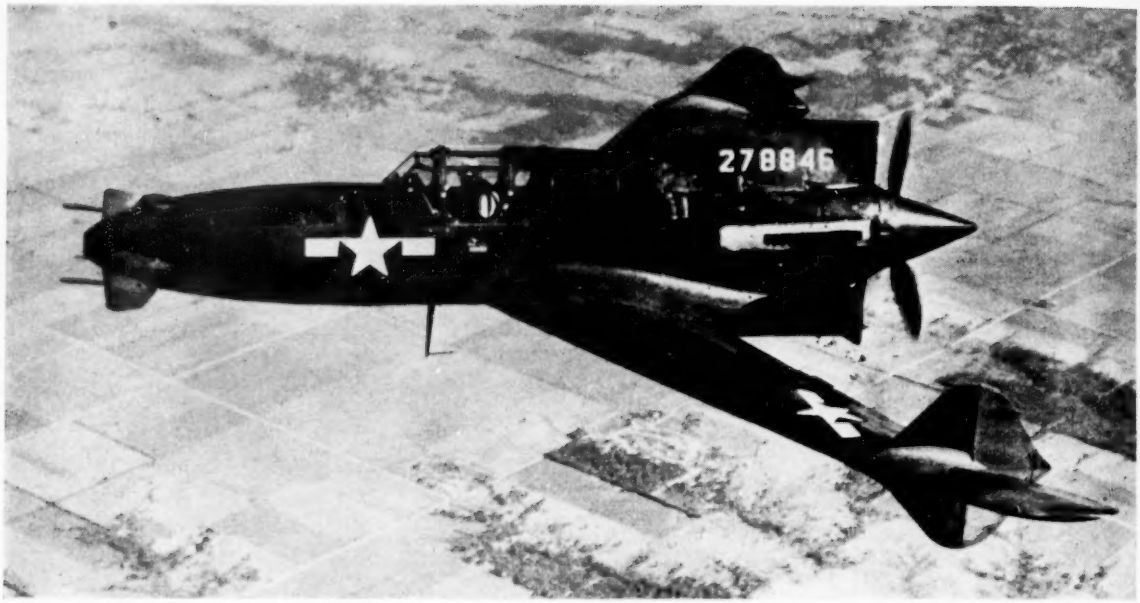
LIBERATOR, IN MODIFIED FORM, is now the basic search plane used by the Navy in 1,500-mile unescorted sweeps from base over the Pacific. The revamped craft is named the Privateer. It has a fuselage some seven feet longer than the standard Liberator, carries twelve .50-



By use of sun's rays, one Gallowhur still can turn seawater into five pints fresh water daily.



Water tanks of glass fabric coated with synthetic rubber are Army-designed for tropics.



The experimental Curtiss Ascender fighter has power plant and wing surfaces mounted behind the pilot, rudders near the wing tips, and elevator controls located in the nose.

calibre guns in six turrets, can stay aloft twenty hours and fly well over 3,000 miles. Its top speed is 250 miles an hour. Most distinguishing feature is a high single tail, which the Navy believes has less drag than the double Liberator tail, providing greater stability in flight and permitting larger cones of fire for top and side guns firing aft. Official designation is the PB4Y-2, succeeding the PB4Y-1, which was simply a converted Liberator. Actually, about all of the original that is left in the new craft is the full Liberator wing.

This welder jeep has been designed to repair fighting equipment, such as tanks, in the field.

The four engines powering the Privateer lift thirty-two tons in take-off.

THE NAVY IS NOW USING a new knapsack-type life jacket and a modified version of the old Kapok jacket-type life preserver. The Kapok jacket now has two leg straps, eliminating danger of broken necks, choking or other casualties from the jacket riding up over the head when wearers jump from sinking ships and planes. The knapsack jacket, designed by Lieutenant Commander Lloyd A. Straits, USNR, enables men to swim rather than just drift. The swimmer is allowed freedom of motion without hindrance of a collar. Snap buttons hold two wing-like sections in place when worn in knapsack position; otherwise, the sections may be snapped around the body and the jacket used simly as support for a floating man.

The following list shows the source from which each picture in this issue was secured. All pictures not credited are either official Marine Corps or Navy photos.

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9 INS
29 American Red Cross
47, 48, 49, 50 W. H. B. Smith
54 Signal Corps
55 U. S. Army
56 (top) Signal Corps; (bottom) U. S. Army Air Forces
57 (top) U. S. Army Air Forces; (lower right) United States Rubber Co.
58 (top) Associated Press (lower) General Electric.

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Exploitation Unlimited

"We will fight," the Japanese say, "until we eat stones."

Convinced of the truth of this after having served as a reporter in Japan and Manchuria for more than ten years, Russell Brines presents a revealing picture of our Pacific enemy in *Until They Eat Stones.**

The author had the opportunity of observing Japanese methods of handling conquered people and individuals, and the book treats of these matters in a broad sense. While there is little emphasis on personal atrocities, the book presents a grim picture of mass enslavement and exploitation according to plan.

The plan was first used on a large scale by Japan in Manchukuo, which served as an exploitation laboratory. "The militarists," the author states, "created in Manchukuo the pattern of the perfectly controlled and regimented state which they visualize for all regions under their power. Without interference from Japan or the world, they tested theories of government, business and industry, education, religion and social life on Manchuria's subjugated millions. In their final form, these control measures have become standard throughout the empire."

Subsequently, they were employed in other lands as rampaging Japanese military power extended itself. In some cases it has succeeded; in others it has failed. However, the Japanese are a patient race; immediate failure does not discourage them. The author, therefore, urges haste in clearing them out of the places they have overrun, before the seeds they have been planting take root and flourish, to aid them in some future war.

That "future war" is very real to Mr. Brines. "Any peace," he says, "that is not total and final capitulation will be a Japanese victory."—J. C. K.

A Carrier and Its Personnel

Helldiver Squadron †, by Robert Olds, is a most meticulous account of the daily activities of the Navy Squadron Bombing 17 in the Pacific aboard a carrier they call the "Holiday Inn." Though not an epic story or a great literary work, the book does a service by detailed coverage on the pilots, rear gunners, and the entire personnel of this carrier, which must remain unnamed.

One thing might be remembered in evaluating the book. Olds is a top publicity writer employed by the firm manufacturing the Helldiver bomber. Hence, his book, in essence, is a tribute to this new-type (SB2C) dive-bomber, which is now being used in quantity aboard the carriers. In spite of this, the fact that Olds is not a war correspondent, and never actually saw Bombing 17 in action, he has done a creditable job in reproducing a readable account of the daily life and activities aboard a carrier in the Pacific.

It is the first story, too, of one of the new Essex type carriers, and follows its career coincidentally with its squadrons from its first show at Rabaul through the major Pacific actions of late 1943 and early '44—Kavieng, Nauru, the Gilberts, Marshalls, Marianas, and Truk.

For those who are interested in flat-top stories, and the minute accounts of the characters aboard and the story of their private lives and combat action, *Helldiver Squadron* makes adequate but not startling reading.—J. A. D.

Aviation Lexicography

The britches-busting growth of aviation in this country has produced innumerable headaches for the millions associated with or interested in the industry. Not the least of these is the lexicography. The most pertinent answer to this is *The Aeronautical Dictionary* * by Thomas A. Dickinson.

This volume has been hailed both by aviation industry engineers and the aviation press as the first easy-to-read work that has appeared. It is an exceptionally complete glossary of 6,000 terms, which are defined adequately in the layman's language. The emphasis is strongly on the technical side, yet, by the use of 300 simplified drawings Dickinson makes most of its terms comprehensible by the newest model plane builder.

Additional reference value is found in the number of appendixes with the book, including many pages on aeronautical abbreviations of all nations, aircraft registration marks by country, aeronautical and conversion symbols, explanation of weather bureau reports, functions of numbers, Army-Navy aircraft specifications, metallurgical data, and a list of aircraft manufacturers.—J. A. D.

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* *Until They Eat Stones,* by Russell Brines (J. B. Lippincott Co., 340 p., $3.00).

† *Helldiver Squadron,* by Robert Olds (Dodd, Mead & Co., 220 p., $3.00).

* *The Aeronautical Dictionary,* by Thomas A. Dickinson (Thomas Y. Crowell Co., 484 p., $2.00).

Marine Rifle Squad in Combat—1

(Continued from page 39)

when his individual action may accomplish some important result. Normally he must make every effort to attach himself to the nearest organized unit.

Ammunition supply plays an important part in the fire fight. All members of the squad carry an initial load of ammunition. The squad leader and fire team leaders must diligently supervise the expenditure of that ammunition. During combat and reorganization, they collect the ammunition from casualties and redistribute it to the remaining members of the squad. *The squad leader must constantly check the status of his ammunition supply* and keep the platoon commander informed as to the amount and kind of ammunition the squad has on hand.

Conduct of the Fire Fight

The squad leader is responsible for selecting the fire position for his squad. The platoon commander may assign the squad a definite fire position but more often he will assign the squad leader an area to occupy and a sector to cover, and leave the details of selection to him. In the attack, in hasty defense, and in the jungle, the fire team leader will frequently have to choose the fire position for his team.

A fire position is a position from which the squad will fire to accomplish its mission, both in the attack and defense. The fire position must permit the squad to effectively engage the enemy by fire. Fields of fire and observation are the primary considerations in selecting a fire position. Other factors that the squad leader should keep in mind are cover and concealment, routes of communication, obstacles, and avenues of approach.

Whenever practicable, the squad leader should select cover positions. These are positions that afford defilade and concealment for men not actively engaged with the enemy. In the attack, the cover position should be in rear of the fire position and as close to it as possible. There the squad leader should point out the fire positions to his men and issue his orders. In the defense, the cover position is located near the fire position. If there is no suitable natural cover and concealment, artificial cover and concealment must be provided. It is here that the men rest when not actually engaging the enemy. When in a cover position in defense, the squad leader must provide for warning of hostile approach by posting sentinels in the fire positions.

In the defense, squad positions are usually located on the forward slope of a hill at or below the military crest. However, terrain and tactical considerations may cause the platoon commander to assign the squad an area on a reverse slope. The position should permit grazing fire, and provide observation and natural cover for the unit occupying it. The squad leader assigns each fire team leader the fire position for his team. The squad leader places the automatic riflemen in the best positions available to carry out the fire missions he assigns them. The fire team leader then selects positions for the remaining members of the fire team from where they can best execute their assigned fire missions and augment the fire of and protect the automatic rifle.

In the attack, the squad leader designates the initial position to be taken by each fire team. The positions taken should, whenever possible, permit the delivery of oblique or flanking fire on the enemy. The automatic rifleman is assigned the position from which his fire will be most effective. The assistant automatic rifleman should be near the automatic rifleman. The fire team leaders place themselves where they can best control the fire of their teams. The squad leader selects a position from which he can observe and control the fire of his squad, and, if possible, at the same time maintain visual contact with the platoon commander.

Having received his orders from the platoon commander, the squad leader makes a reconnaissance of the ground over which his squad will have to fight. In the attack, the squad leader will not, as a rule, be able to make a reconnaissance in detail; he studies the terrain and enemy position as best he can from a concealed position. In the defense, this reconnaissance must be as thorough as time and the proximity of the enemy permit.

On completing his reconnaissance, the squad leader decides how to employ his squad to accomplish the mission assigned it. His decision is transmitted to the squad in the form of an order which tells each fire team what it will do to help accomplish the squad mission. If time permits, the squad leader should draw a rough sketch of the ground over which the squad will move. This will assist the men to grasp the order quickly and to understand exactly what is expected of them.

The squad leader, when time and circumstances permit, issues his orders to the entire squad. In the defense, it is desirable that the squad leader move his squad to the position that it is to occupy and there issues his orders. In the attack, he assembles the squad, whenever practicable, in a concealed position from where it can see the ground over which it is to operate. Before issuing his orders, the squad leader will orient the squad, pointing out the direction of attack and the terrain features that will be mentioned in his order.

After the orientation, the squad leader issues

his order. Complete, this order consists of five paragraphs:

(1) *Information*—In this paragraph the squad leader gives all the information he has pertaining to the enemy that the squad should know to accomplish its mission. He also gives information of all friendly units that will be operating in the vicinity of the squad, such as the units on its right and left, and of any supporting fires that may be expected.

(2) *Mission*—In this paragraph, the squad leader states briefly and clearly the job the squad must do. He includes here the time of attack, the direction of attack, the line of departure, the formation, and the squad objective. In brief, this paragraph states *what, when, where, how, why.*

(3) *Task Assignments*—Here the squad leader tells each fire team and any attached unit (such as a fire team from another squad, a rocket launcher team, a flame thrower team, or a demolition team) what it is to do to assist in taking the objective.

(4) *Administrative Details* — This paragraph includes information relating to ammunition supply, location of aid station, food and water, what to do with prisoners, etc.

(5) *Communications*—Here the squad leader states where he will be. If there are any pyrotechnic signals to be used, he will inform the squad as to what they are and of their meaning.

Most of the information contained in paragraphs 1, 2, 4 and 5 will be given to the squad leader by the platoon commander. The substance of paragraph 3 is original with the squad leader, and expresses the plan he wishes to execute to accomplish his mission. When he finishes his order, the squad leader asks if there are any questions, and answers them if there are. He glances at his watch and states the exact time.

The squad leader will seldom issue a complete order to his squad, but will usually issue a partial or fragmentary order. If the enemy is met suddenly, the squad leader may have to commit his squad to action rapidly. In this instance, his orders may be a combination of a few code words, like football signals, which every man in the squad has learned and will understand. In whatever form the squad leader gives his order, it must be brief, clear, and in simple language, so that every man will have all the information he needs in order to carry out his part in the fight intelligently.

When it is impossible for the squad leader to give his order to the entire squad, he issues it to his fire team leaders, who, in turn, give an order to their men.

Use of Automatic Rifles

In the defense, the squad leader is responsible for the selection of positions for the automatic rifles and the designation of their fire missions. The fire positions should be chosen so that the automatic riflemen can cover the entire squad fire sector, fire across the front of the squad, and fire across the front of adjacent squads. Particular attention should be paid to covered avenues of approach into the squad position. The squad leader should personally sight in each automatic rifle in order to assure himself that the fire mission assigned can be accomplished from the selected position. Alternate and supplementary positions must be selected and prepared for each automatic rifle in the same manner as primary positions.

Automatic riflemen open fire "single shot," so as not to give their positions away prematurely. As the enemy gets nearer, the position and more lucrative targets expose themselves, the automatic riflemen should switch to automatic rate and concentrate fire on them. Having once fired at the automatic rate, the automatic riflemen should be prepared to shift to their alternate positions at any time.

The assistant automatic rifleman should be located near the automatic rifleman, preferably to the latter's right or left rear. The assistant acts as a rifleman at all times, but he should be in a position to help locate and to point out targets for the automatic rifleman, to aid in the service of the weapon, to supply ammunition, and to keep the AR in action if the automatic rifleman becomes a casualty.

In the attack, the fire team leader points out the fire position and target for the AR. He designates the rate of fire that is to be used, and initiates the movement of the AR to a new position either by command or signal. Whenever possible, the fire team leaders should select positions that will permit the automatic rifleman to deliver enfilade or oblique fire at the target. Frequently the fire team leader will not be able to select the exact position for the AR, but, instead, will point out the area wherein he believes the best position is located.

Situations may arise where the squad leader may detach ARs from their fire teams to carry out special fire missions. This may frequently occur in open terrain, where a position is available on which more than one AR can be emplaced to support more effectively, by concentrated fire, the movement of the rest of the squad.

When an objective has been taken, ARs are immediately emplaced to cover likely avenues of approach for counterattack by the enemy.

In the attack, the squad leader advances his squad by fire and movement until part or all of the squad is close enough to the enemy to assault. In an advance by fire and movement, part of the squad keeps the enemy under fire while another part moves closer to the enemy position. The part of the squad that fires pins the enemy down by the accuracy and volume of its firing; the other part then moves a short distance toward the

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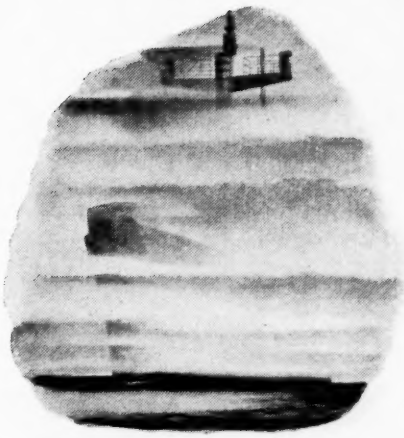

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MIDWAY THROUGH the Suez Canal, a Liberty Ship found herself suddenly enveloped in a dense smoke screen which the English were using to hide some maneuvers.

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enemy to new fire positions. As soon as the latter group has commenced firing from its new position, the first group stops firing and moves to a new fire position closer to the enemy. This process is continued until part or all of the squad is in position to assault the enemy successfully.

The squad leader must decide how he can best use his squad to attack the enemy position. He must consider the fire power, strength, and position of the enemy; the ground between the enemy's position and his own, and the fire power of his squad. He must look for a suitable position from which to engage the enemy by fire and for covered and concealed routes into the enemy position. After considering the above factors, the squad leader determines which basic maneuver to employ.

The fire team leader, having received orders from the squad leader as to what part his team is to play in the attack, employs fire and movement to advance it. There are three basic maneuvers the fire team leader can employ:

(1) He may move his team forward by individual infiltration, having the automatic rifle in position to fire when the other men are moving. At least two members of the team should be in position to fire, in order to cover the advance of the automatic rifleman.

(2) He may place the automatic rifle in position to fire on the enemy while the other members of the team move to the right and attack the enemy's left flank.

(3) He may place the automatic rifle in position to fire on the enemy while the other members of the team move to the left and attack the enemy's right flank.

The fire team leader must control the forward movement of his team. If the team advances by fire and movement using the method of individual infiltration, the team leader designates which individual is to move. The individual picks out his next fire position before he moves. The distance to the new fire position should be short. He loads and locks his rifle, moves rapidly to the new position, using what cover and concealment the ground offers, checks his sight, picks up the target, unlocks, and commences firing. The team leader then designates the next individual to move. This individual picks out a position in the vicinity of the first man who moved up, and moves to it. This process is continued until the entire fire team has moved forward. When moving in this manner, at least three members of the fire team are firing, or are in position to fire, while one man is moving.

The fire team leader may advance his team by rushes. In this case, either two or three men or the entire team may advance at one time. If two or three men are advanced simultaneously, the AR will be placed in position to fire to cover their movement. As soon as the two or three men

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are in their new fire positions, the automatic rifleman moves up to his new position. The forward bounds should be short.

In the assault, riflemen with bayonets fixed, and automatic riflemen move aggressively toward the enemy position, taking full advantage of existing cover, such as mounds, trees, buildings, fallen logs, boulders, and tanks. They fire as they advance at areas known or believed to be occupied by the enemy. Riflemen will usually fire from the hip or shoulder at a rapid rate. The automatic rifleman will utilize any firing position that is convenient; often firing in short bursts at a rapid rate from the hip.

The second article in this series, describing the rifle squad in offensive combat, will be presented in next month's GAZETTE.

Marine Family Organization

The Marine Parents' Club of Cincinnati, a group which entertains Marines back from the Pacific, sends gifts to Marines on their birthdays and Christmas, and provides assistance for needy families of members of the Corps, would like to know of similar groups. Address Waldo E. Larkby, 3753 Elsmere Ave., Norwood, Ohio.

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Naval War In The Pacific—1944

(Continued from page 16)

made of enemy defenses, carrier forces under tactical command of Admiral Raymond A. Spruance, USN, heavily attacked the Palau Islands, with additional strikes at Yap, Ulithi and Woleai, in the western Carolines. The approaching force was detected, and many enemy ships, including heavy units, fled from Palau anchorages. However, on 20-30 March, 29 Japanese ships were sunk at Palau: 3 destroyers; 2 large, 6 medium and 9 small freighters; 3 large, 1 medium and 1 small tanker; and 4 smaller vessels. Eighteen other vessels were severely damaged, some of them fired or beached, and 114 Jap aircraft were shot down; 46 destroyed on the ground. Yap and Ulithi were hit on the 30th. At Yap, 1 small craft was sunk; at Ulithi, 1 sunk, 1 damaged. At Woleai, on the 31st, 7 aircraft were destroyed on the ground, 3 barges destroyed. Installations at all four locations suffered heavy damage. Our losses were 25 aircraft lost in combat.

30 March—Bikini atoll, Marshall Islands, was secured.

APRIL

1 April—Ailuk atoll, Marshall Islands, was secured.

2 April—Mejit atoll and Jemo Island (uninhabited), Marshall Islands, were secured.

3 April—Rongelap, Likiep, Ailinginae and Rongerik atolls (latter two uninhabited), Marshall Islands, were secured.

5 April—U. S. troops land on Ram Buyto, in the Admiralty Islands, without opposition. Utirik, Bikar and Taka atolls (latter uninhabited), Marshall Islands, secured.

11 April—"Major portion" of New Britain is ours, according to announcement from General MacArthur's headquarters. Formerly strong enemy positions at Cape Hoskins and Casmata have been abandoned, and the Japanese have fled for a last stand at Rabaul.

15 April—Alaska and Aleutians separated from 13th Naval District and made the 17th Naval District. Rear (now Vice) Admiral John H. Hoover, USN, was designated Commander, Forward Area, Central Pacific, by Admiral C. W. Nimitz, USN, with command over all forces assigned to the Forward Area, including land-based air forces.

18 April—Saipan, Tinian and Aguijan Islands in the Marianas were bombed in daylight by PB4Y8s of Fleet Air Wing 2 and B-24s of 7th AAF.

19 April—Sabang, enemy base off the northern tip of Sumatra, was bombarded by an Allied task force of carriers, battleships, cruisers, destroyers and submarines. Among the capital ships was the *USS Saratoga*. Admiral Sir James Sumerville, Royal Navy, commanded the force. This was the first time in World War II that ships of the Pacific Fleet have operated with British units on an offensive mission in the Indian Ocean.

20-23 April—Forces of the 5th Fleet provided air and surface support for landings of Southwest Pacific forces at Sitape and Hollandia, on the northern coast of New Guinea. Fifth Fleet carrier aircraft bombed and strafed Japanese airfields at Wakde, Sawar and in the Hollandia area. Fifth Fleet cruisers and destroyers bombarded Japanese airfields at Wakde and Sawar at night. Ground installations, fuel and ammunition dumps were destroyed in these strikes. It is estimated that 5th Fleet aircraft—whose operations were coordinated with those of the Southwest Pacific Air Forces—destroyed 88 Japanese aircraft on the ground, 34 in the air; and 1 small cargo vessel and 6 small craft. Fifth Fleet losses: 10 aircraft in combat.

21 April—Under cover furnished by ships of the 5th and 7th Fleets, and shore-based aircraft of the Southwest Pacific forces, troops under command of General MacArthur went ashore at Humboldt Bay and Tanamerah Bay to secure Hollandia, and also at Aitape. Opposition was light. Beachheads were quickly secured, and by the 28th all airfields and airdromes at both areas were in our hands. This move effectively isolated at least 60,000 Japs of the Japanese 18th army between Aitape and Madang, and made it possible to blockade them as enemy troops in the Solomons, the Bismarck Archipelago and the Marshalls were being blockaded. In this operation, the 5th Fleet units were under tactical command of Vice Admiral Marc A. Mitscher, USN, and the 7th Fleet units were under Rear Admiral D. E. Barbey, USN. Erikub and Aur atolls, Marshall Islands, were secured.

23 April—Ujeland atoll, Marshall Islands, was secured without opposition. This completed the Marshalls operation. In period of about 12 weeks, our forces had captured about 90 per cent of the enemy possessions in the Marshalls, and completely

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dominated the 330,000 square miles of sea and air in their environs. So effective had been our air and surface covering operations that, of the 24 atolls and 3 islands taken, only Kwajalein and Eniwetok had been heavily defended. Enemy casualties: 10,902 killed and 523 prisoners of war. Our casualties: 566 killed and missing, 1,683 wounded. Japanese bases on the following four atolls, completely bypassed, blockaded and pounded by daily air attacks, were left to "wither on the vine"; Jaluit, Mille, Wotje, Maloelap.

24 April—Madang, on the coast of northeast New Guinea, occupied by Australian and United States troops. On the 26th, these troops occupied Alexishafen, in the same area. This seizure gave Allied forces control of Vitiaz Strait, off northeast New Guinea, and major base and port facilities.

29-30 April—Returning from the Hollandia operation, 5th Fleet units under Vice Admiral Mitscher attacked Truk. Carrier aircraft heavily bombed and strafed ground installations, doing extensive damage. Other enemy losses: 63 aircraft shot down, 60 destroyed on the ground; 4 small craft sunk. We lost 27 aircraft.

30 April—Pacific Fleet cruisers and destroyers bombarded Satawan, in the Namoi group, Caroline Islands. The target area, which the Japanese had been developing as an air base, was thoroughly covered with heavy projectiles. Rear Admiral J. B. Oldendorf, USN, commanded the forces.

MAY

1 May—Battleships of the 5th Fleet, supported by carrier aircraft, bombarded Ponape, in the Carolines. Numerous buildings in Ponape town, the sea plane base, and the wharf area were destroyed. (Ponape and other Japanese bases in the Carolines had suffered increasingly heavy shore-based air attacks during the months of March and April. Such attacks were further stepped up during May.)

13-14 May—Land-based bombers heavily attack Jaluit, Marshall Islands.

16-19 May—Wakde Islands, 115 miles west of Hollandia along the New Guinea coast, seized by U. S. Army units under the Supreme Commander, Allied Forces, Southwest Pacific area.

17 May—Soerabaja, Java, attacked by carrier aircraft of the Allied naval forces which had attacked Sabang on 19 April. This raid coincided with landings at Wakde. Damage inflicted: At least 10 enemy ships damaged, some heavily, and 26 aircraft destroyed. Ground installations damaged. Our losses: 1 aircraft. Destroyers bombarded Maloelap.

19-20 May—Pacific Fleet carriers bombed and strafed enemy installations on Marcus Island in two-day air attack.

20 May—Cruisers and destroyers bombarded enemy positions in the Shortland Islands, just south of Bougainville.

21 May—Land-based aircraft heavily bombed Wotje, Marshall Islands.

22 May—Destroyers bombarded Wotje.

23 May—Carrier aircraft bombed Wake Island.

26 May—Destroyers bombarded Mille, Marshall Islands.

27 May—Biak Island, 180 miles west of Wakde

off New Guinea coast, invaded by U. S. Army units under command of General MacArthur. They were supported by bombing and naval bombardment by ships of the 7th Fleet. From Biak, Davao in the Philippines is less than 80 miles and the Palau Islands are slightly over 500 miles

29 May—Medina, on northern coast of New Ireland, was bombarded by Pacific Fleet destroyers.

JUNE

9 June—Japanese base at Fangelawa Bay, New Ireland, was bombarded by Pacific Fleet destroyers.

10 June—Aircraft of a fast carrier task force struck at enemy airpower on Saipan, Tinian, Rota, Pagan and Guam in the Marianas. Installations, positions and parked aircraft were bombed and strafed. Approximately 150 enemy aircraft were destroyed, about three-fourths of them in the air. Our losses: 11 aircraft.

11 June—Japanese convoy of about 20 vessels fleeing the Marianas was attacked by our carrier aircraft west of Pagan. Most of the ships were sunk or heavily damaged. Another enemy convoy consisting of 6 vessels was similarly attacked west of Guam, and damaged. Other shipping in the Marianas area was attacked by our aircraft. Ground installations on Saipan, Tinian, Rota, Pagan, and Guam were bombed and strafed.

12 June—Attacks by carrier aircraft on the Marianas were continued. Battleships conducted a day-long bombardment of Saipan. Night of 12-13 June: Destroyers bombarded Saipan and Tinian.

13 June—Carrier air strikes on the Marianas were continued. Battleships bombarded Saipan and Tinian. Pacific Fleet cruisers, destroyers and aircraft attacked enemy installations on Matsuwa Island in the Kuriles.

14 June—Covered by heavy air and surface bombardment, our troops went ashore at Saipan, main Japanese base in the Marianas and headquarters of the Japanese Commander in Chief, Central Pacific Area. Vigorous opposition had developed. Fighting on Saipan ranked with the severest in the Pacific war, but its seizure constituted a major breach in the Japanese line of inner defenses. The expeditionary force included the 2nd and 4th Marine Divisions and the 27th Infantry Division, United States Army. The Saipan operation, like the other invasions in the Marianas, was under the general direction of Admiral Raymond A. Spruance, USN, Commander, Fifth Fleet, with Vice Admiral Richmond K. Turner, USN, in charge of the expeditionary forces. (Saipan is 3,300 miles from Pearl Harbor, 1,000 miles from Eniwetok, and 1,260 miles from Tokyo.) During the evening, Japanese aircraft attacked our ships in the Saipan Area. Fifteen aircraft were shot down. Iwo Jima in the Volcano Islands and Chichi Jima and Haha Jima in the Bonins were attacked by our carrier aircraft. Installations were bombed and strafed. Jap losses: 39 aircraft shot down, 25 destroyed on the ground. Two freighters were sunk, several heavily damaged. Our losses: 8 aircraft. This was our first carrier strike on the Volcanos and Bonins.

15 June—Installations on Iwo Jima were bombed and strafed by our carrier aircraft. There was no airborne opposition but antiaircraft fire was heavy. We lost 3 aircraft. Carrier strikes continued on the Marianas area. China-based B-29s bombed Yawata, steel center on northern Kyushu, in Japan. This was the first attack by land-based aircraft on the main Japanese Islands, and the first time B-29 bombers were used in an offensive invasion. Vice Admiral J. H. Newton, USN, relieved Admiral William F. Halsey, USN, as Commander South Pacific Area and South Pacific Force. Admiral Halsey remained Commander 3rd Fleet.

16 June—Carrier aircraft continued to bomb enemy installations in the Marianas in support of our expanding beachhead.

17 June—U. S. forces on Saipan captured Aslito (later Isely) air field.

18 June—Aircraft from Japanese carrier striking force attacked our sea forces covering the Saipan operation in the first stage of the Battle of the Philippine Sea. The enemy attack continued for several hours. The Japanese aircraft were intercepted and a high percentage of them shot down. Enemy losses for the day: 402 aircraft, all but 17 of which were destroyed in the air; two carriers damaged. Our losses: 17 aircraft, and superficial damage to two carriers and a battleship.

19 June—Aircraft from our carriers attacked the Japanese carrier striking force, in the second stage of the Battle of the Philippine Sea. Jap losses: 1 aircraft carrier, 1 light aircraft carrier, 2 destroyers, 1 tanker sunk; 1 aircraft carrier, 1 destroyer and 1 tanker possibly sunk; 1 aircraft carrier, 1 or 2 light aircraft carriers, 1 battleship, 2 heavy cruisers, 1 light cruiser, 1 destroyer and 3 tankers damaged; 26 Japanese aircraft were shot down. Our losses: 93 aircraft (many of their personnel were rescued from these planes, a large percentage of which had been forced to land on the water in the darkness that night). From this date until 7 July, Guam and Rota were attacked each day by at least one strike

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from our carrier forces. On that day continued heavy surface bombardment—coordinated with the air strikes—began.

20 June—Our fleet attempted to pursue and to contact the enemy fleet which was in a full speed retreat. The enemy eluded our search.

22-23 June—Installations on Pagan were bombed and strafed by our carrier aircraft.

23 June—Our carrier aircraft struck at Iwo Jima. Japanese losses: 68 aircraft near Iwo Jima, 46 in unsuccessful thrusts at our carriers—total 114 aircraft lost in the air. Our losses: 5 aircraft.

25-26 June—Kurabu Zaki, an important enemy base on Paramushiru in the Kuriles, was bombarded at night by our cruisers and destroyers.

26 June—Guam was bombarded by surface units.

30 June-1 July—Guam again bombarded by surface units.

JULY

1 July—Under cover of naval and air bombardment troops under command of General MacArthur landed at Kamiri on Noemfoor Island, 100 miles west of Biak Island off Dutch New Guinea. Key Kamiri airfield was captured without much opposition 1 hour and 51 minutes after the landing.

2-3 July—Iwo Jima in the Volcano Islands and Haha Jima in the Bonins were heavily attacked by carrier aircraft. Bombs, machine guns and rockets were used. On the 3rd Iwo Jima was shelled by surface units. Meanwhile Iwo Jima was attacked by a fast carrier task group. In these strikes 9 ships were sunk, 8 damaged, together with a larger number of small craft. Twenty-six Japanese aircraft were shot down and 128 were left inoperable on the ground. We lost 22 aircraft.

6 July — Several thousand Japanese troops launched a desperate counterattack on our forces at Saipan. Our casualties were severe, but the charge was thrown back with more than 1,500 enemy troops killed.

7 July—Guam was bombarded by surface units. From this time until the landing on the 20th, Guam was under constant surface bombardment, with coordinated strikes by our carrier aircraft. Continued attacks were also made on Rota.

8 July—Organized resistance ended on Saipan. This was one of the most significant victories won by U. S. forces in the Pacific. It led directly to the fall of the Tojo cabinet in Tokyo. Mopping up continued. Through 9 December, 26,571 Japanese had been killed and 2,099 captured on Saipan. B-29s based on the continent of Asia bombarded the Japanese naval base at Sasebo and the steel center of Yawata, in Japan. This was the second B-29 raid on the Japanese homeland, the first having occurred on 15 June.

12 July—Second Marine Division landed on Maniagassa Island, 2 miles off the northwestern coast of Saipan.

13 July—Iwo Jima was bombed by aircraft of the Central Pacific shore-based air forces. This was the first raid on the Nanpo Shoto by land-based aircraft of the Pacific Ocean Areas.

15-17 July—Guam was shelled at close range by battleships, cruisers and destroyers in the heightening campaign to obliterate gun emplacements and other installations. Tinian was shelled during the night of the 15-16th by destroyers.

20 July—Supported by carrier aircraft and heavy surface bombardment, our troops invaded Guam, largest and southernmost of the Marianas, establishing beachheads on both sides of Apra Har-

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bor. The landing forces included the 3rd Marine Division, the 1st Provisional Marine Brigade and the 77th Infantry Division. There was little opposition to the landings themselves, but determined opposition developed inland. From this date until 7 August, our battleships, cruisers and destroyers furnished fire support to the troops ashore on Guam. Carrier aircraft also provided continued support.

21 July—Artillery and naval gunfire were directed against Tinian.

23 July—Second and Fourth Marine Divisions landed on Tinian, supported by carrier and land-based aircraft and artillery and naval gunfire. Casualties in the landing forces were light. As at Guam, naval gunfire and carrier aircraft support was provided our troops on Tinian in the days following the assault.

24-27 July—Carrier aircraft of a fast carrier task group attacked enemy installations in the Palau Islands. Also attacked were Yap, Ulithi, Fais, Ngulu and Soror, in the western Carolines.

29 July—Tinian town was captured. Apra Harbor, site of former U. S. Naval Base on Guam, was again put into use by our ships.

29-30 July—Supported by Allied naval and air forces, troops under General MacArthur landed on the 29th on the islands of Amsterdam and Middleburg and at Cape Opmari, near Sansapor in northwestern Vogelkop, near the western tip of Netherlands New Guinea. These islands are nearly 200 miles beyond our base on Noemfoor Island, and slightly more than 600 miles southeast of the Philippines. On the 30th, we landed at Cape Sansapor. There was little opposition to these landings. This move by-passed Manokwari, pivotal enemy base in the Vogelkop Peninsula, and effectively neutralized New Guinea as an enemy base of operations.

31 July—Organized resistance ceased on Tinian. Mopping up continued. Through 9 December, 6,932 Japanese had been killed, 321 taken prisoner on Tinian.

AUGUST

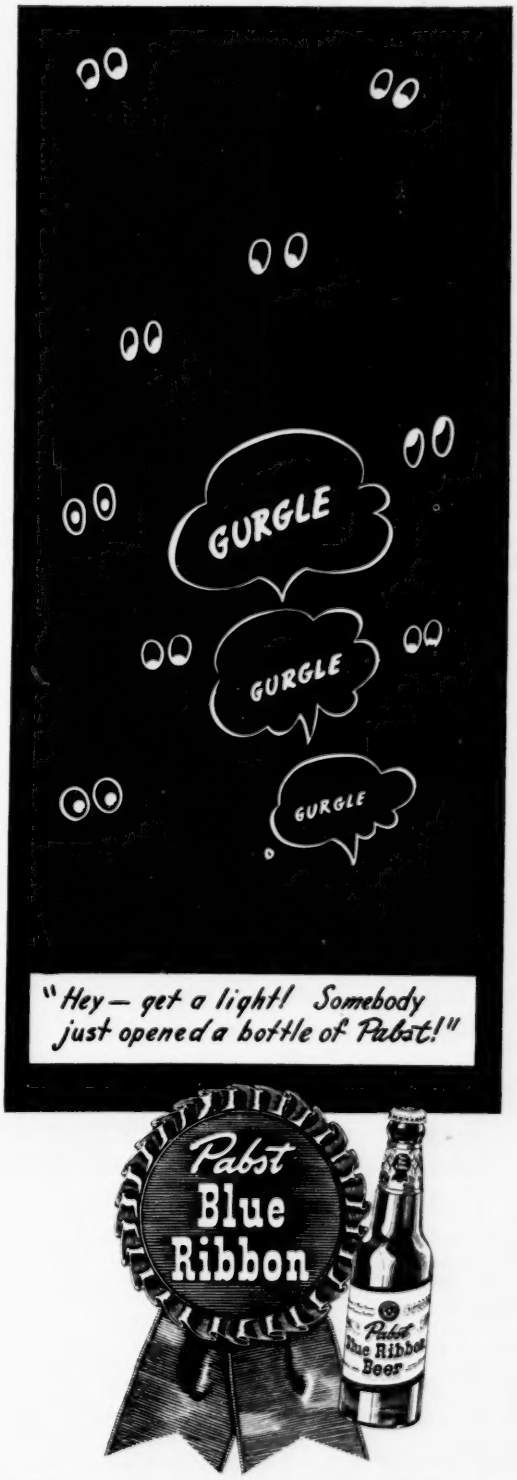
2 August—American flag was formally raised on Tinian.

3-4 August—Air and surface units of a fast carrier task force virtually wiped out a Japanese convoy and raided airfields and installations in the Bonin and Volcano Islands. (Muko Jima, Chichi Jima, Haha Jima, Ane Jima, Iwo Jima.) Japanese losses were 11 ships sunk, 8 ships damaged; 6 aircraft shot down, 7 destroyed on the ground. We lost 16 planes.

9 August—Organized Japanese resistance ended on Guam. Mopping up continued. Through 9 December, 17,436 Japanese had been killed and 512 captured on Guam.

30-31 August and 1 September—Chichi Jima and Haha Jima, in the Bonins, and Iwo Jima in the Volcanos, were bombed and strafed by aircraft of a fast carrier task force on 30th and the 1st, Chichi Jima and Haha Jima were bombarded by cruisers and destroyers. Japanese losses were: 6 ships sunk, 4 ships probably sunk, 3 ships damaged; 11 aircraft shot down, 35 destroyed on the ground. Installations, airfields and supply dumps were damaged. We lost 5 aircraft.

31 August—Admiral Nimitz announced that Lt. General Millard F. Harmon had assumed command of all Army Air Force units operating in the Pacific Ocean Areas.



SEPTEMBER

3 September—Cruisers and destroyers did extensive damage to enemy installations on Wake Island by surface bombardment. There was no air opposition.

5 September—Aircraft of a fast carrier task group bombed Palau Islands. Installations were damaged; 17 small craft were left burning.

5-7 September—Carrier aircraft bombed and strafed Yap and Ulithi, in the western Carolines.

6 September—Enemy installations in the Palau Islands were shelled by cruisers and destroyers of the Pacific Fleet.

8 September—Carrier aircraft attacked Mindanao Island in the Philippines. Sixty-eight enemy aircraft were shot down, 32 loaded freighters in convoy were sunk by combined air and surface attack; 20 ships in Davao Gulf were damaged; 20 small craft were sunk, 17 damaged.

9 September—Carrier aircraft attacked Angaur, Peleliu and Koror Islands, in the Palau Group, and bombed installations and shipping.

10-11 September—Babelthuap, Peleliu and Angaur were attacked by carrier aircraft of the Pacific Fleet. On the 11th, these islands were bombarded by battleships.

11-13 September—Carrier aircraft shot down 156 enemy aircraft and destroyed 277 on the ground in strikes at Leyte, Cebu, Negros and Panay Islands in the Visayas group, Philippines. Forty enemy ships were sunk, 44 damaged. Ground installations were damaged.

12 September—Carrier aircraft hit Angaur, Peleliu and Ngesebus, in the Palau Islands.

14 September—Supported by fleet, air and surface units, the 1st Marine Division landed on Peleliu in the Palau Islands. The amphibious operations were commanded by Vice Admiral T. W. Wilkinson, USN, Commander, Third Amphibious Force. Expeditionary troops were commanded by Major General Julian C. Smith, USMC. Ground opposition was fairly stiff. The fast carrier task force supporting the operation was commanded by Vice Admiral Marc A. Mitscher, USN. At almost the same hour, our troops, under command of General MacArthur, landed on Morotai, in the Halmaheras. Opposition was negligible, and an airfield was captured the first day.

15 September—Carrier aircraft bombed enemy positions and installations on Babelthuap and Peleliu, in the Palau Islands.

16 September—The 81st Infantry Division, U. S. Army, invaded Angaur, southernmost of the Palau Islands, under cover of air and surface bombardment. Opposition was light. Military government was set up on Peleliu Island.

19 September—Organized resistance ceased on Angaur Island.

20-21 September—Elements of the 81st Infantry Division, covered by ships of the Pacific Fleet, occupied Ulithi atoll, in the western Carolines. They were unopposed. The Pacific war came back, after 2½ years, to the island of Luzon, with a smashing two-day attack by carrier-based aircraft of the Pacific Fleet. Japanese losses: 40 ships sunk, 11 ships probably sunk, 6 small craft sunk, 11 small craft damaged, 2 floating drydocks damaged, 169 aircraft shot down, 188 aircraft destroyed on the ground, 45 aircraft damaged on the ground, 3 aircraft damaged by ships' gunfire. Extensive, widespread damage to military targets. Our losses: 11 aircraft.

23 September—Carrier planes of the Pacific Fleet struck at Cebu, Leyte, Negros, Luzon, and Nactan, in the Visayas Group of the Philippine Islands. Japanse losses were 22 ships sunk, 43 ships damaged, 20 to 30 small craft sunk or damaged; 7 aircraft shot down, 29 destroyed on the ground.

27 September—First Marine Division landed on Ngesebus and Kongauru, in the Palau Islands, with the usual air and surface bombardment cover. Both islands were quickly secured.

30 September—Military government was proclaimed on Angaur. Military government was set up on Kongauru and Ngesebus Islands.

OCTOBER

8 October—Marcus Island was bombarded by surface units of the Pacific Fleet. Elements of the 81st Infantry Division landed on Garakayo, in the southern Palau Islands. The island was secured the following day.

9 October—For the first time of the war, carrier aircraft of the Pacific Fleet attacked the Ryukyu Archipelago. The strikes were in great force. Forty-six enemy ships and 41 small craft were sunk. Twenty ships were probably sunk; 20 ships damaged. Twenty-three enemy aircraft were shot down, 59 destroyed on the ground; 37 were damaged on the ground. Ground installations were heavily damaged. Our losses: 8 aircraft.

10 October—Troops of the 81st Infantry Division landed on Bairakaseru Island, Palau. There was no opposition. Our carrier planes attacked Luzon Island in force.

12 October—Organized resistance on Peleliu ceased. Mopping up continued. Through 9 December, total Japanese casualtes on Peleliu and Angaur were 13,354 killed, 433 taken prisoners.

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11-15 October—Aircraft of a fast carrier task force struck Formosa in force 11-13 October. Air battles ensued which lasted until the 15th. Enemy losses were 416 aircraft destroyed; 32 ships sunk, 13 probably sunk, 55 damaged. We lost 66 aircraft. Ground installations were extensively damaged. (Following our carrier attacks on Formosa and Luzon, Tokyo announced a great Japanese victory, claiming 11 U. S. carriers were sunk, 6 damaged; 2 battleships sunk, 1 damaged; 3 cruisers sunk, 4 damaged, etc. These figures were raised in a broadcast of 25 November to the following: 50 carriers, 20 battleships, 2 battleships or cruisers, 30 cruisers, 16 cruisers or destroyers, 7 destroyers and 22 unidentified craft sunk or damaged. (See entry for 17 October below.)

13 October—Luzon was attacked by carrier aircraft. No airborne opposition.

15 October—Carrier aircraft struck again at Manila Bay area. Ngulu atoll, in the western Carolines, was occupied. Resistance was slight.

16 October—Carrier aircraft attacked Manila area. Japanese losses were 20 aircraft shot down, 30-40 destroyed on the ground.

17-18 October—Carrier aircraft attacked northern Luzon and the Manila area. Fifty-six enemy aircraft were destroyed; four ships were sunk, 23 damaged. Our losses were 7 aircraft.

17 October—The Commander-in-Chief, U. S. Pacific Fleet and Pacific Ocean Areas, announced that no U. S. battleship or aircraft carrier had been damaged in the Formosa and Luzon battles. Two medium-sized ships had been damaged.

19 October—Carrier aircraft of a fast carrier task force bombed, rocketed and strafed targets in the Visayas group, Philippine Islands. The U. S. 6th Army, under command of General MacArthur, began landings on Leyte, supported by the largest concentration of Allied forces yet assembled in the Pacific. This goaded the Japanese Navy to action. Three powerful enemy task forces converged on the landing beaches from the South China Sea and the Japanese home islands. Thus the stage was set for the Second Battle of the Philippine Sea.

20 October—Carrier aircraft strafed and bombed enemy aircraft and shipping targets in the Philippine Islands.

22-27 October—Second Battle of the Philippine Sea. This was one of the decisive victories of the war in the Pacific. *Enemy losses:* 2 battleships, 4 carriers, 6 heavy cruisers, 3 light cruisers, 3 small cruisers or large destroyers, 6 destroyers. Severely damaged, may have sunk: 1 battleship, 5 cruisers, 7 destroyers. Damaged: 6 battleships, 4 heavy cruisers, 1 light cruiser, 10 destroyers. *U. S. losses:* Sunk: the light carrier *Princeton;* 2 escort carriers, the *Saint Lo* and the *Gambier Bay;* 2 destroyers, the *Johnston* and the *Moel;* 1 destroyer escort, the *Samuel B. Roberts;* and a few lesser craft. Our units involved were from the Third and Seventh Fleets. In this battle, the Japanese fleet was divided into three forces: FORCE "A": 5 battleships, 10 heavy cruisers, 1 light cruiser, 13-15 destroyers. Two heavy cruisers were sunk west of Palawan on the 22nd as Force "A" proceeded north. A third, damaged, turned back. On the 23rd, Force "A" was attacked by our carrier aircraft in the Mindoro Straits. One light cruiser was sunk, and 1 battleship and 1 light cruiser were heavily damaged and turned back. Several other ships were hit. This force continued through the San Bernardino Straits on the 24th, however, and on that date was met by escort carriers and other

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light units of the Seventh Fleet east of Samar. Aircraft of the Third Fleet entered the engagement about noon. At least one enemy heavy cruiser was sunk, 1 destroyer left dead in the water. The entire Japanese force turned back. Later in the day, the force again was attacked by our aircraft, and a damaged cruiser was sunk by our surface units. On the 25th, this fleeing force again was attacked by carrier aircraft and 1 heavy cruiser and 1 light cruiser were sunk and other vessels damaged. FORCE "B": 2 battleships, 2 heavy cruisers, 7 destroyers and possibly 2 light cruisers. This force was attacked in the Sulu Sea on the 23rd by our carrier aircraft and damaged. As it passed through Surigao Straits (night of October 24-25), it was attacked by our force and all units sunk or decisively defeated. FORCE "C": 1 carrier, 3 light carriers, 2 battleships with flight deck aft, 5 cruisers, 10 destroyers. This force, proceeding southward off the east coast of Luzon, was surprised by our Third Fleet carrier planes early on the 24th. All carriers were sunk. One battleship with a flight deck aft was damaged, 2 cruisers or destroyers sunk. One damaged cruiser was sunk during the next night by a U. S. submarine.

28 October—Carrier aircraft attacked southern Luzon and the Central Philippines. Enemy losses: 3 cargo vessels sunk, 1 cruiser probably sunk, 2 cruisers and 1 tanker damaged; 78 aircraft shot down, 12 destroyed on the ground.

NOVEMBER

1 November—A carrier group of the Third Fleet was attacked in the western Pacific by enemy aircraft. Damage was inflicted on several ships. Ten of the attacking aircraft were destroyed.

4 November—Carrier aircraft of the Third Fleet attacked Manila Harbor and five nearby airfields. One hundred and ninety-one enemy aircraft were destroyed. Two enemy cruisers, 3 destroyers and several cargo ships were damaged.

5 November—Carrier aircraft of the Third Fleet continued attacks on Luzon. In addition to the enemy's aircraft losses of 4 November, 249 aircraft were destroyed. Three cargo vessels and an oiler were sunk, and six other vessels were damaged. Ground installations were heavily damaged.

7-8 November — Approximately 200 Japanese landed on Ngeregong Island, northeast of Peleliu, where a small Marine patrol had previously landed. The Marines were evacuated without loss.

10 November—Iwo Jima was bombarded by ships of the Pacific Fleet. Carrier aircraft of the Third Fleet attacked a 10-ship enemy convoy just outside Ormoc Bay, destroying 7 ships, probably sinking 2 others, and damaging the other ship. Fifteen enemy aircraft were downed; we lost 9.

12 November—Carrier aircraft attacked shipping in Manila Bay. One light cruiser, 4 destroyers, 11 cargo ships and oilers were sunk. Twenty-eight enemy aircraft were downed, 130-140 strafed on the ground.

14 November—Troops of the 81st Infantry Division reoccupied Ngeregong, in the Palau Islands, which had been heavily attacked with bombs and gunfire. There was no resistance.

18 November—Aircraft from a carrier task force struck shipping and airfields in and around Manila, and 10 ships were damaged, 1 sunk, and 100 enemy aircraft were destroyed on the ground.

21 November—Matsuwa, in the Kuriles, was bombarded by a naval task force. Shore batteries did not reply.

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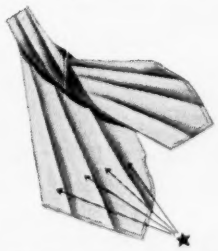

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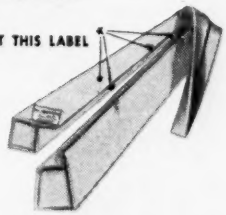

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24 November—Carrier based aircraft of the Third Fleet attacked Luzon. Eighteen vessels were sunk and 15 were damaged. Eighty-seven enemy aircraft were destroyed. In the first B-29 raid on Japan from our newly established super-bomber base on Saipan, high explosives and incendiaries were poured on the Toyko waterfront area and on the Musashina aircraft plant.

DECEMBER

6 December—Japanese aircraft raided B-29 base at Saipan. Six enemy aircraft shot down. One B-29 was destroyed, 2 damaged.

7 December—A very heavy attack on Iwo Jima was carried out by a large force of B-29s, together with 108 Liberators and 30 Lightnings. On the same day, surface units bombarded the island.

8 December—Cincpac communique announced that Lt. General Millard F. Harmon had been assigned to command the Strategic Air Force, Pacific Ocean Areas, including all shore-based aircraft of the Pacific Ocean Areas normally employed on offensive missions.

11 December—Great Britain announced that a British Pacific Fleet would be sent to the Pacific theater, under command of Admiral Fraser.

13-15 December—Carrier aircraft of the Pacific Fleet bombed and strafed harbor and airfield installations on Luzon. Enemy losses: 34 ships sunk, 36 damaged; 61 aircraft destroyed in the air, 208 destroyed on the ground. We lost 27 aircraft.

15 December—Army troops under General MacArthur invaded Mindoro Island, south of Luzon.

19 December—Admiral C. W. Nimitz, Cincpac and Cincpoa, assumed the rank of a Fleet Admiral.

20 December—Organized resistance on Leyte has ended.

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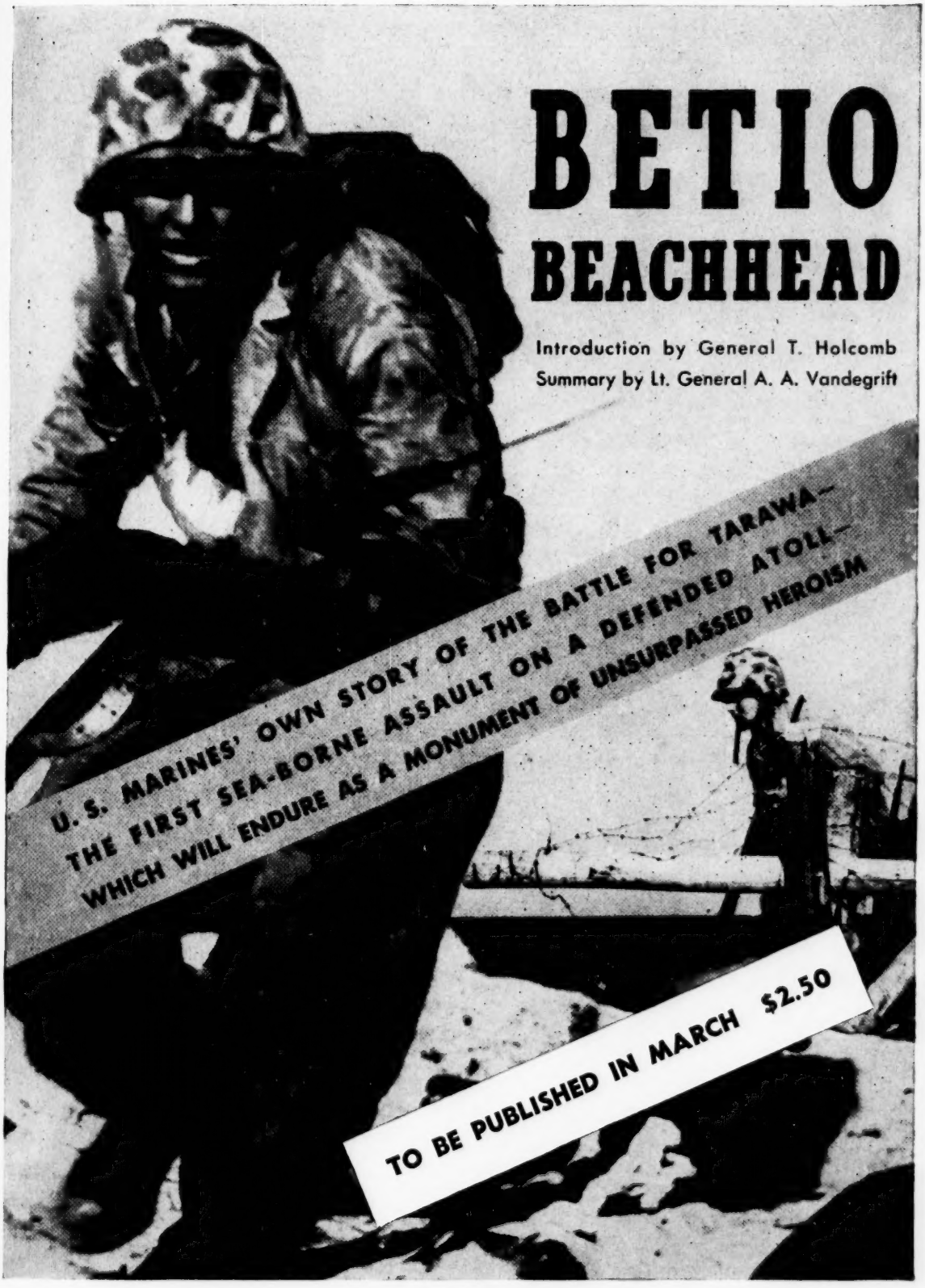
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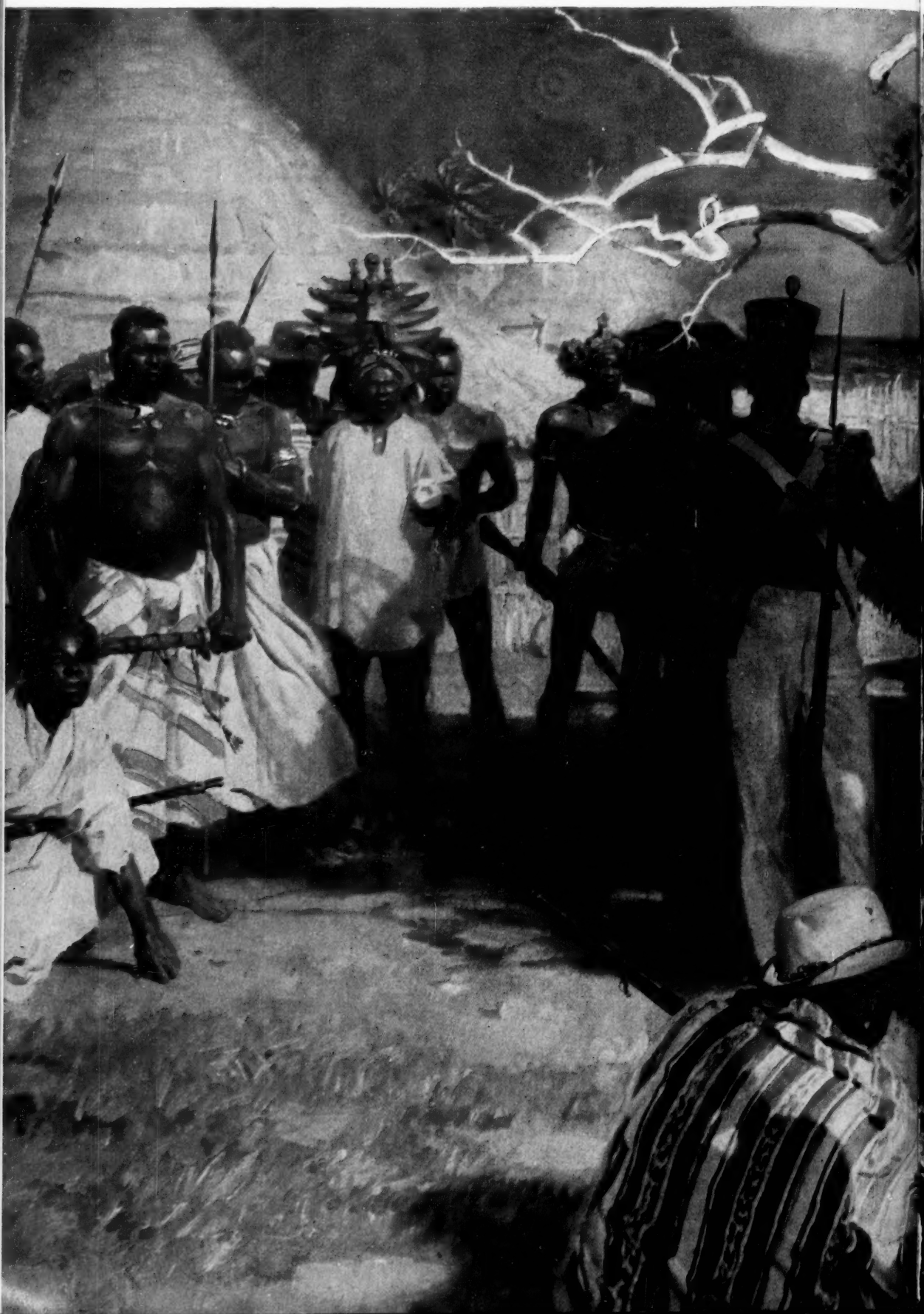
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